



Government of Bengal

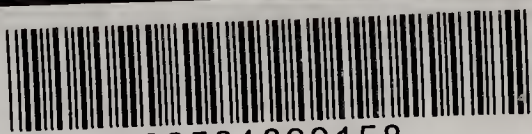
Fourteenth Triennial Report on Vaccination in Bengal

For the Years
1926-27, 1927-28 and 1928-29

Calcutta
Bengal Secretariat Book Depot.

1930

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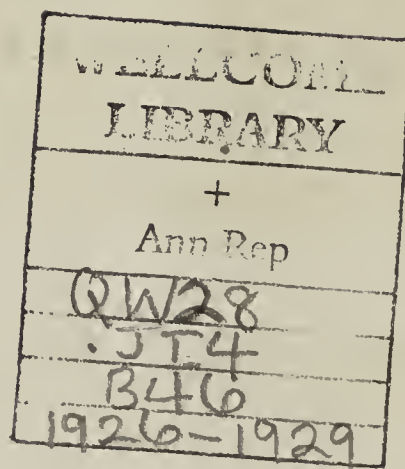
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BENGAL PUBLIC HEALTH DEPARTMENT.

No. 852 V.

FROM

DR. C. A. BENTLEY, C.I.E., M.B., D.P.H., D.T.M. & H.,
Director of Public Health, Bengal,

TO

THE SECRETARY TO THE GOVERNMENT OF BENGAL,
LOCAL SELF-GOVERNMENT DEPARTMENT.

Calcutta, the 25th January 1930.

SIR,

I have the honour to submit for the information of the Government of Bengal the Provincial Report on Vaccination for the triennium 1926-27 to 1928-29 including the statistical vaccination returns for the year 1928-29 by Dr. Sufi, Assistant Director of Public Health in charge of Vaccination in the Bengal Public Health Department.


I have the honour to be,

SIR,

Your most obedient servant,

CHAS. A. BENTLEY,

Director of Public Health, Bengal.



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Fourteenth Triennial Report on Vaccination in Bengal for the years 1926-27, 1927-28 and 1928-29.



I have the honour to submit the following Report on Vaccination in Bengal for the triennium ended with 1928-29.

I was in charge of the Vaccination and Vital Statistics Bureau throughout the triennium.

2. Strength of Staff.—The following table shows the strength of the staff in the rural and urban areas of the province during the triennial period under review:—

Classes.	1926-27.	1927-28.	1928-29.	Total.	Average.	Average of the previous triennium.
<i>(a) Rural areas.</i>						
Vaccination Inspectors and Sub-Inspectors* ..	143	125	131	399	133	129
Vaccinators ..	1,596	1,535	1,832	4,963	1,654	1,495
<i>(b) Mufassal municipalities.</i>						
Vaccination Inspecting Officers ..	2	5	2	9	3	5
Vaccinators ..	144	157	154	455	152	147
<i>(c) Calcutta.</i>						
Inspecting Officers ..	16	16	18	50	17	16
Vaccinators ..	58	58	60	176	59	55

* Excluding officers of the rural public health organization.

3. General Vaccination Statistics.—The statement below shows the work done in the province during the period under review:—

The appended table is self-explanatory. The province has been visited by the usual quinquennial epidemic of small-pox, since the close of the year 1924, and the all-round increase is due to the vigorous anti-vaccination campaigns started by practically every local body. The excess in the average number of revaccinations performed during the triennium under review of 147·4 per cent. and the increase of 258·3 per cent. in the recess work, are very creditable indeed. The apparent decrease in the percentage of successful primary cases, and the unchanged rate of successful revaccination cases in which the results were known, are due to the fact that during the epidemic season, the vaccinators were too busy with vaccinating every person they could lay their hands upon and could not spare sufficient time to note the result of every operation performed by them and hence the majority of the cases were returned as “unknown.”

A comparison of the work done in 1928-29 with the previous year shows an excess of 1,307,037 in the number of persons vaccinated and of 1,305,582 in that of the operations performed, the latter comprising of 123,543 in the number of primary and of 1,182,039 in that of revaccinations. The number of successful operations also increased by 82,162 in the case of primary and by 741,061 in that of revaccinations. 434 more persons on an average were vaccinated by each vaccinator. While the

Headings.	Present triennium.				Average of the previous triennium.	Increase + or decrease—.	Percentage of increase + or decrease—.
	1926-27.	1927-28.	1928-29.	Average.			
Total number of persons vaccinated	3,276,975	3,969,367	5,276,404	4,174,249	2,581,364	+1,592,885	+61·7
Total number of vaccinations performed.	3,278,581	3,975,837	5,281,419	4,178,612	2,583,623	+1,594,989	+61·7
(a) Primary Vaccinations ..	1,741,801	1,928,674	2,052,217	1,907,564	1,665,623	+241,941	+14·5
Successful ..	1,657,657	1,814,715	1,896,877	1,789,750	1,602,006	+187,744	+11·7
(b) Revaccinations ..	1,536,780	2,047,163	3,229,202	2,271,048	918,000	+1,353,048	+147·4
Successful ..	800,543	1,092,249	1,833,310	1,242,034	492,343	+749,691	+152·3
Average number of persons vaccinated by each vaccinator ..	1,761	2,145	2,579	2,162	1,464	+698	+47·7
Percentage of successful cases in which results were known—							
(a) Primary ..	95·1	94·1	92·9	94·0	96·1	—2·1	..
(b) Revaccinations ..	52·09	53·3	56·5	53·9	53·9	±0	..
Ratio of successful vaccinations per mille of population ..	52·8	62·2	79·7	64·9	44·8	+20·1	+·44
Number of children successfully vaccinated—							
(a) Under one year ..	274,398	281,727	262,982	273,036	311,052	—38,016	—12·2
(b) One year and under six years ..	1,109,756	1,192,010	1,222,631	1,174,799	1,039,638	+135,161	+13·0
Total number of vaccinations performed during the non-vaccination season.	393,875	1,162,525	1,139,924	898,775	250,866	+647,909	+258·3
(a) Primary ..	113,119	335,901	295,472	248,164	86,181	+161,983	+187·9
(b) Revaccinations ..	280,756	826,624	844,452	650,611	164,685	+485,926	+295·1

rate of success in primary cases in which results were known declined from 94·1 per cent. to 92·9 per cent., that of revaccinations rose from 53·3 per cent. to 56·5 per cent. 79·7 persons per mille of population were successfully vaccinated against 62·2 in the previous year. Again, while there was a decrease of 18,745 in the number of children under one year successfully vaccinated, an excess of 30,621 was noticed in the case of children of one year and under six years of age. The recess vaccination fell by 22,601, but while the number of primary operations decreased by 40,429, there was an increase of 17,828 in the number of revaccinations.

4. **Vaccination in Rural Areas.**—(a) The total number of operations performed in the rural areas in the triennial period under review was 11,270,136 comprised of 5,389,593 primary and 5,880,543 revaccinations, the average being 3,756,712, against a total of 6,916,564, of which 4,726,382 were primary and 2,190,182 revaccinations and an average of 2,305,521 in the previous triennium showing a net increase of 4,353,572 in the total, 663,211 in primary, 3,690,361 in revaccinations and an average annual increase of 1,451,190 in the total, 221,070 in primary and 1,230,120 in revaccinations in the period under review.

(b) The following table compares the number of operations performed in the rural areas in 1928-29 with those done in 1927-28.

All the districts in the province performed an excess number of operations in 1928-29, as compared with the previous year, except the Asansol

Mining Settlement, Birbhum, Bankura, Midnapur, Jalpaiguri and Pabna. This increase was most marked in Malda, Murshidabad and Jessore.

Vaccination in rural areas.

Districts.	Vaccinations.		Differences.	Percentage of increase + or decrease—.
	1927-28.	1928-29.		
Burdwan ..	68,441	88,697	20,256	+29·59
Asansol Mining Settlement.	29,168	24,471	4,697	—16·10
Birbhum ..	75,792	60,001	15,791	—20·83
Bankura ..	72,012	64,685	7,327	—10·17
Midnapur ..	382,606	268,984	113,622	—29·70
Hooghly ..	44,733	47,239	2,506	+5·60
Howrah ..	39,212	45,907	6,695	+17·07
24-Parganas ..	153,561	174,737	21,176	+13·79
Nadia ..	97,171	108,892	11,721	+12·06
Murshidabad ..	158,914	361,743	202,829	+127·6
Jessore ..	83,986	178,399	94,413	+112·4
Khulna ..	76,477	147,591	71,114	+92·98
Rajshahi ..	99,434	155,961	56,527	+56·84
Dinaipur ..	138,809	150,419	11,610	+8·36
Jalpaiguri ..	63,988	63,311	677	—1·06
Darjeeling ..	18,495	34,910	16,415	+88·74
Rangpur ..	163,901	220,858	56,957	+34·75
Bogra ..	69,974	73,579	3,605	+56·15
Pabna ..	212,754	113,572	99,182	—46·62
Malda ..	184,851	498,429	313,578	+169·6
Dacca ..	161,097	273,724	112,627	+69·91
Mymensingh ..	387,310	519,130	131,820	+34·03
Faridpur ..	128,990	159,091	30,101	+23·33
Bakarganj ..	150,341	206,754	56,413	+37·52
Chittagong ..	122,929	186,323	63,394	+51·56
Noakbali ..	182,948	237,545	54,597	+29·84
Tippera ..	223,137	380,658	157,521	+70·58
Chittagong Hill Tracts	9,825	19,604	9,779	+99·52
Total for the Province	3,600,856	4,865,214	1,264,358	+35·11

(c) The details of primary and revaccinations performed district by district are given below:—

Districts.	Primary vaccinations.		Difference.	Percentage of increase + or decrease—.	Revaccinations.		Difference.	Percentage of increase + or decrease—.
	1927-28.	1928-29.			1927-28.	1928-29.		
Burdwan ..	40,290	47,512	7,222	+17·92	28,151	41,185	13,034	+46·3
Asansol Mining Settlement ..	13,142	14,051	909	+6·91	16,026	10,420	5,606	—34·98
Birbhum ..	37,360	30,535	6,825	—18·27	38,432	29,466	8,966	—15·52
Bankura ..	36,694	41,617	4,923	+13·42	35,318	23,068	12,250	—34·68
Midnapur ..	143,629	96,063	47,566	—33·11	238,977	172,921	66,056	—27·64
Hooghly ..	19,862	23,699	3,837	+19·31	24,871	23,540	1,331	—5·35
Howrah ..	24,626	26,700	2,074	+8·42	14,586	19,207	4,621	+31·68
24-Parganas ..	112,643	108,916	3,727	—3·31	40,918	65,821	24,903	+60·85
Nadia ..	45,045	55,685	10,640	+23·61	52,126	53,207	1,081	+2·07
Murshidabad ..	55,958	55,460	498	—·89	102,956	306,283	203,327	+197·5
Jessore ..	42,951	42,713	238	—·55	41,035	135,686	94,651	+230·6
Khulna ..	52,390	59,790	7,400	+14·12	24,087	87,801	63,714	+264·5
Rajshahi ..	40,740	24,488	16,252	—39·89	58,694	131,473	72,779	+124·0
Dinaipur ..	83,733	84,977	1,244	+1·48	55,076	65,442	10,366	+18·82
Jalpaiguri ..	29,510	27,010	2,500	—8·47	34,478	36,301	1,823	+5·29
Darjeeling ..	8,566	10,034	1,468	+17·13	9,929	24,876	14,947	+150·5
Rangpur ..	93,779	110,935	17,156	+18·29	70,122	109,923	39,801	+56·75
Bogra ..	30,574	30,915	341	+1·11	39,400	42,664	3,264	+8·28
Pabna ..	74,301	57,666	16,635	—22·38	138,453	55,906	82,547	—59·64
Malda ..	27,467	29,771	2,304	+8·36	157,384	468,658	311,274	+197·8
Dacca ..	106,214	142,341	36,127	+34·01	54,883	131,383	76,500	+139·4
Mymensingh ..	240,839	269,646	28,807	+11·96	146,471	249,484	103,013	+70·32
Faridpur ..	64,993	65,904	911	+1·40	63,997	93,187	29,190	+45·61
Bakarganj ..	126,696	166,633	39,937	+31·52	23,645	40,121	16,467	+69·67
Chittagong ..	64,542	83,091	18,549	+28·74	58,387	103,232	44,845	+76·80
Noakhali ..	78,047	89,286	11,239	+14·40	104,901	148,259	43,358	+41·33
Tippera ..	121,717	134,580	12,863	+10·57	101,420	246,078	144,658	+142·6
Chittagong Hill Tracts ..	6,242	7,846	1,604	+25·69	3,583	11,758	8,175	+228·1
Total ..	1,822,550	1,937,864	115,314	+6·32	1,778,306	2,927,350	1,149,044	+64·6

Both the primary and revaccinations decreased in Birbhum, Midnapur and Pabna. In the Asansol Mining Settlement, Bankura and Hooghly while the primary vaccinations increased, there was a reduction in the number of revaccinations. The reverse was the case in 24-Parganas, Murshidabad, Jessore, Rajshahi and Jalpaiguri. The remaining 17 districts showed an increase both in primary and revaccinations. In Burdwan, the Asansol Mining Settlement, Birbhum, Bankura, Hooghly, Howrah, 24-Parganas, Nadia, Dinajpur, Rangpur, Pabna, Dacca, Mymensingh, Faridpur, Bakarganj and Chittagong the line of least resistance was followed with the result that primary vaccinations exceeded revaccinations, even though the smallpox epidemic in at least six of these districts was more prevalent in 1928-29 than what it had been in the previous year. It is unfortunate that in these districts the importance of revaccination as an essential factor in controlling smallpox epidemics was overlooked by the local sanitary authorities, but I trust that this laxity will not be repeated in future.

(d) The increase in the number of vaccinations wherever it has occurred, has been due to the presence of smallpox in an epidemic form, which is the only stimulus for the people to get themselves vaccinated. The decrease has been ascribed by the District Health Officers to various causes, chiefly the comparative freedom of the district from smallpox during season time, the presence of malaria affecting both the vaccinators and the persons to be vaccinated, the paucity in the number of vaccinators employed, the insufficient supervision exercised by the Sanitary Officers due to their being very busy with anti-cholera work, and to a certain extent by the obstruction caused by anti-vaccinationists, quacks and conscientious and religious objectors. More attention is said to have been paid to mass revaccination to suppress local smallpox epidemics and hence no time was left to vaccinators to carry on their normal work on primary vaccination in many districts.

5. Vaccination in Municipalities.—

(a) 942,697 operations of which 270,156 were primary and 672,541 revaccinations, were performed in the present triennium against 556,406, 223,180 and 333,226, respectively, in the previous

triennium showing a net increase of 386,291 in total, 46,976 in primary and 339,315 in revaccinations and an average annual increase of 128,764, 15,659 and 113,105, respectively, in the triennial period under review.

(b) Both the primary and revaccinations in 1928-29 showed an excess over those of the previous year in the municipalities of Burdwan, Hooghly, Howrah, 24-Parganas, Nadia, Jessore, Khulna, Rajshahi, Dinajpur, Jalpaiguri, Darjeeling, Bogra and Bakarganj districts and a reduction in those of Bankura, Midnapur, Rangpur, Pabna, Dacca, Mymensingh, Faridpur, Chittagong, Noakhali and Tippera. In the municipalities of Birbhum and Murshidabad districts and in Calcutta, while more primary vaccinations were performed during the year under review, the number of revaccinations decreased; the reverse was the case, however in those of the Malda district.

Vaccination in municipalities.

Districts.	Primary vaccinations.		Increase + or decrease	Revaccinations.		Increase + or decrease
	1927-28.	1928-29.		1927-28.	1928-29.	
Burdwan ..	2,481	3,106	+	3,202	4,611	+
Birbhum ..	181	191	+	952	112	—
Bankura ..	2,492	2,202	—	2,275	1,770	—
Midnapur ..	2,049	1,631	—	5,438	2,125	—
Hooghly ..	4,820	5,545	+	3,693	8,867	+
Howrah ..	4,267	4,683	+	5,351	7,244	+
24-Parganas ..	13,039	14,360	+	7,157	9,866	+
Calcutta ..	20,993	23,877	+	90,087	82,275	—
Nadia ..	2,961	3,004	+	2,791	3,564	+
Murshidabad ..	2,239	2,337	+	4,404	4,235	—
Jessore ..	239	440	+	194	286	+
Khulna ..	580	965	+	698	830	+
Rajshahi ..	951	1,319	+	2,199	3,230	+
Dinajpur ..	595	1,132	+	1,628	6,470	+
Jalpaiguri ..	363	467	+	588	626	+
Darjeeling ..	1,129	1 807	+	3,681	25,211	+
Rangpur ..	1,418	929	—	7,427	1,200	—
Bogra ..	284	772	+	1,045	7,057	+
Pabna ..	2,127	2,023	—	1,943	1,930	—
Malda ..	1,223	957	—	2,149	7,349	+
Dacca ..	8,021	7,129	—	16,474	14,937	—
Mymensingh ..	3,448	2,534	—	5,331	3,857	—
Faridpur ..	1,722	1,683	—	1,225	860	—
Bakarganj ..	1,895	2,074	+	1,726	2,858	+
Chittagong ..	1,897	1,436	—	8,354	4,721	—
Noakhali ..	771	382	—	1,597	606	—
Tippera ..	2,001	1,885	—	1,851	1,836	—
Total ..	84,186	88,870	+	183,460	208,533	+

6. **Vaccinations performed by other agencies.**—(a) The following table compares these operations during the two trienniums:—

Years.			Primary vaccinations.	Revaccinations.	Total.
1926-27	..	..	15,522	81,345	96,867
1927-28	..	..	21,938	85,397	107,335
1928-29	..	..	24,093	93,319	117,412
Total			61,553	260,061	321,614
Total of the previous triennium.			47,306	230,592	277,898
Increase	..	..	14,247	29,469	43,716
Average increase			4,749	9,823	14,572

(b) The number of operations performed during the year under review and the previous year are shown below:—

Agencies.		Primary vacci- nations.		Increase + or decrease	Revaccinations.		Increase + or decrease
		1927-28.	1928-29.		1927-28.	1928-29.	
Tea gardens	..	11,566	9,675	—	13,957	23,415	+
Factories	..	7,303	7,930	+	9,038	22,017	+
Railways	..	2,746	6,404	+	27,220	14,766	—
Steamers	..	..	..	..	2,391	1,879	—
Dispensaries	..	..	8	+	..	19	+
Jails	..	323	76	—	32,791	31,223	—
Total	..	21,938	24,093	+	85,397	93,319	+

7. **Protection afforded to infants.**—(a) An average of 256·0 per mille of the surviving population of infants in the province, 237·8 in rural and 524·7 in the municipal areas were successfully vaccinated during the present triennium against 269·2, 252·6 and 517·5 respectively in the previous one. In Calcutta, however, the degree of protection was 1107·8 against 958·7 in the previous triennium.

(b) In 1928-29, 216·9 per mille of all the available infants were protected in rural areas, 473·3 in the municipalities, 802·05 in Calcutta and 233·3 in the province, against 246·7, 511·7, 856·8 and 261·4, respectively, in the previous year. While the increase in the towns is satisfactory, the decrease in the rural areas is regrettable. With the exception of Burdwan, Bankura, Nadia, Jalpaiguri, Darjeeling, Dacca and Chittagong,

all the other districts have returned a decrease in this proportion. The record of the following three districts deserves special notice:—

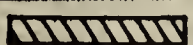
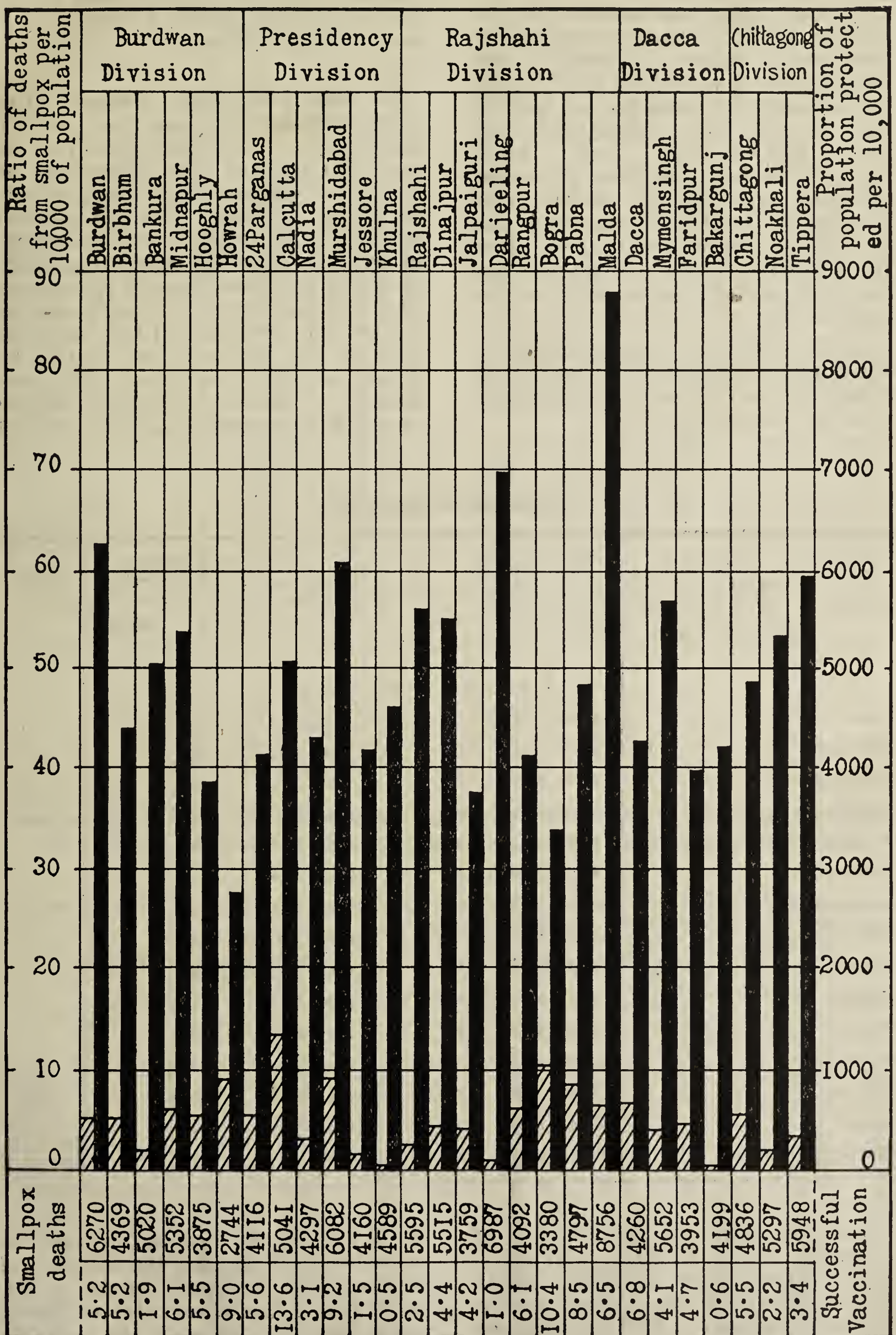
			1927-28.	1928-29.
Mymensingh	..	..	95·6	85·7
Faridpur	..	..	77·9	65·6
Bakarganj	..	..	41·2	31·4

The reduction in Rajshahi and Jessore from 487·1 and 334·1 in 1927-28 to 255·1 and 165·6 in 1928-29, respectively, is, to say the least of it, very discouraging.

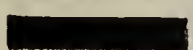
(c) The low degree of protection in the rural areas has been attributed by the District Health Officers generally to the unwillingness on the part of the parents or guardians to have their children vaccinated under the age of one year, in fact to 3 or 4 years in some districts; and the vaccinators having no knowledge of the actual age of infants in a family are unable to trace them; for the same reason no notice could be served on their guardians under the Bengal Vaccination Act for the enforcement of primary vaccination. Now that the Bengal Births and Deaths Registration Act has been extended to rural areas, there is every possibility of this difficulty being overcome. Occasionally, it has been reported to be due to the illness of infants from malaria, measles and other epidemic and endemic diseases.

8. **Linear method of vaccination.**—This method has only been very recently introduced in all the districts, and sufficient time has not yet elapsed to finally establish its superiority over the old scarification method. Besides, the vaccinators so long accustomed to the old method have not yet become fully used to the new technique. So far as the consensus of opinion of the District Health Officers goes, it has given a rate of success as satisfactory as the old method, to say the least of it, and what is more, being less painful and comparatively free from complications, has been favourably received by the general public. The District Health Officers of Birbhum, Jalpaiguri and Bakarganj, however, still seem to favour the old method. In Dinajpur, linear method was found to be more successful in primary than in revaccination cases, where scarification was reported to have ensured better success. The Bogra District Health Officer obtained better results with incisions “given like a cross in order to increase the skin surface inoculated.” I am convinced that, in course of time, the linear

Diagram illustrating Death-rates from Small-pox and degree of Protection afforded during 1919-20 to 1928-29.



Indicate the death rates from small-pox.



Indicate the proportion of population protected by vaccination.

method of incision will be universally accepted without a single dissentient voice.

9. **Cost of vaccination.**—(a) The average cost of vaccination during the triennium under review was Rs. 4,75,712-1-1 against Rs. 4,47,795-0-10 in the previous triennium. In 1928-29, the total cost amounted to Rs. 4,84,635-10-11, of which Rs. 1,85,165-9-11 (including the annual recurring grant of Rs. 50,000) were contributed by the Government and Rs. 2,99,470-1-0 by local bodies, against Rs. 4,89,681-9-8, Rs. 1,77,523-0-8 and Rs. 3,12,158-9-0, respectively, in the previous year.

(b) The following district boards reduced their expenditure on vaccination during the year under review compared with the previous year:—

(c) The average cost of each successful case was 2 annas and 5 pies in the present against 3 annas and 2 pies in the previous triennium and one anna and 7 pies in 1928-29 against 2 annas and 8 pies in the preceding year.

10. **Mortality from smallpox.**—The diagram on preceding page gives side by side the death rates from smallpox in each district and the proportion of population protected by vaccination during the last 10 years. The quinquennial epidemic that started towards the close of 1924, continued throughout the year, though it now shows signs of abatement. The average number of deaths during the present triennium 37,890 exceeded that of the previous one, 10,989 by 26,901 or 244·7 per cent. The total number of deaths in 1928-29, 42,020 exceeded the previous year's total 39,713

Expenditure on Vaccination.

Districts.	Expenditure.		Amount of reduction.	Small pox death-rate per mille.		Increase + or decrease —.
	1927-28.	1928-29.		1927-28.	1928-29.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Dacca	4,959 3 2	4,943 3 7	15 15 7	·84	2·67	+
24-Parganas	11,608 8 6	11,281 14 7	326 9 11	·88	·35	—
Darjeeling	4,570 6 0	4,192 6 0	378 0 0	·07	·30	+
Tippera	7,923 15 0	7,003 2 0	920 13 0	·41	1·16	+
Hooghly	2,911 14 9	1,920 5 0	991 9 9	·85	·71	—
Jalpaiguri	5,057 1 0	3,987 11 11	1,069 5 1	·07	·06	—
Bakarganj	6,192 3 0	5,104 1 0	1,088 2 0	·07	·10	+
Burdwan	17,012 5 10	15,798 0 11	1,214 4 11	·72	·77	+
Jessore	6,699 3 0	5,344 0 0	1,355 3 0	·22	·11	—
Rajshahi	4,871 9 0	3,502 9 0	1,369 0 0	·21	·55	+
Nadia	6,665 6 0	4,847 7 0	1,817 15 0	·45	·69	+
Mymensingh	23,690 5 9	21,006 15 6	2,683 6 3	·68	1·33	+
Faridpur	4,497 0 0	1,735 3 0	2,761 13 0	·44	1·71	+
Pabna	11,045 5 6	6,998 3 6	4,047 2 0	2·42	·39	—
Midnapur	19,853 3 9	13,555 14 0	6,297 5 9	1·70	·92	—

The reduction in the districts of Burdwan, Nadia, Rajshahi, Darjeeling, Dacca, Mymensingh, Faridpur, Bakarganj and Tippera where there was an excess of smallpox in 1928-29, compared with the previous year, was extremely injudicious.

by 2,307 or 5·8 per cent. From the following table showing the number of deaths from smallpox, district by district, it will be observed that compared with the previous year, the mortality was reduced in every district except Burdwan, Nadia, Rajshahi, Darjeeling,

Malda, and all the districts of Dacca and Chittagong Divisions, with the exception of Noakhali.

Districts.	Small-pox deaths during—		Increase + or decrease
	1927-28.	1928-29.	
Burdwan ..	1,040	1,115	+
Birbhum ..	1,024	267	—
Bankura ..	243	120	—
Midnapur ..	4,535	2,468	—
Hooghly ..	919	764	—
Howrah ..	1,511	295	—
24-Parganas ..	2,179	859	—
Calcutta ..	1,172	505	—
Nadia ..	680	1,024	+
Murshidabad ..	2,977	2,363	—
Jessore ..	386	189	—
Khulna ..	126	43	—
Rajshahi ..	327	817	+
Dinajpur ..	1,594	1,466	—
Jalpaiguri ..	69	57	—
Darjeeling ..	21	86	+
Rangpur ..	2,619	2,076	—
Bogra ..	2,710	1,345	—
Pabna ..	3,376	541	—
Malda ..	1,537	2,347	+
Dacca ..	2,642	8,376	+
Mymensingh ..	3,304	4,304	+
Faridpur ..	1,002	3,653	+
Bakarganj ..	201	278	+
Chittagong ..	1,639	3,429	+
Noakhali ..	730	313	—
Tippura ..	1,150	2,920	+
Total ..	39,713	42,020	+

This reduction in smallpox mortality in as many as 16 out of the 27 districts in the province has been chiefly due to the persistently vigorous activities of the local bodies, the majority of whom, following the advice given to them by the Public Health Department, maintained during the year under review, intensive vaccination and revaccination campaigns in their respective jurisdictions, helped by their vaccination inspecting staff and the rural health organisations, who gave a good account of themselves by performing vaccinations with their own hands as detailed in the statement below. In this connection the anti-smallpox campaign started in the Malda district where about five hundred thousand vaccinations, mostly revaccinations, were performed during the year deserves special notice; the campaign is still going on.

Both the Government special Inspectors of Vaccination were kept continually on the move and visited the districts of Malda, Mymensingh, Bakarganj, Faridpur, Nadia, Bankura, Dinajpur and Burdwan. I myself visited and advised the local authorities in Bogra, Rangpur, Mymensingh, Jessore, Midnapur and Murshidabad districts.

Statement showing the number of vaccinations performed by the Sanitary Inspectors and the Vaccination Inspecting Staff and the number of villages where smallpox was prevalent during 1928-29.

Districts.	Number of villages in the district.	Number of villages attacked with small-pox.	Number of Sanitary Inspectors.	Number of operations performed by Sanitary Inspectors.			Number of Vaccination Inspectors and Sub-Inspectors.	Number of operations performed by the vaccination Inspecting Staff.		
				Primary.	Revaccination.	Total.		Primary.	Revaccination.	Total.
Burdwan ..	2,817	452	14	3,283	1,641	4,924	3	..	..	..
Birbhum ..	2,302	122	5	516	1,342	1,858	2	689	1,469	2,158
Bankura ..	4,003	76	4	1,080	1,527	2,607	2	47	296	343
Midnapur ..	10,351	1,145	18	1,550	5,167	6,717	5	738	1,214	1,952
Hooghly ..	2,197				No information available.					
Howrah ..	863	22	7	488	819	1,307	2	204	98	302
24-Parganas ..	3,427	264	17	2,018	3,015	5,033	5	944	1,283	2,227
Nadia ..	2,353	134	14	1,330	10,891	12,221	6	884	5,986	6,870
Murshidabad ..	1,974	683	8	1,731	7,815	9,546	5	2,338	18,584	20,922
Jessore ..	3,613	34	19	821	4,005	4,826	2	Nil	Nil	Nil
Khulna ..	2,011	37	17	201	541	742	4	80	568	648
Rajshahi ..	4,487	282	6	283	799	1,082	3	79	841	920
Dinajpur ..	6,612	340	8	413	754	1,167	3	2,140	4,027	6,167
Jalpaiguri ..	722	33	8	406	1,218	1,624	3	385	1,544	1,929
Rangpur ..	4,102	620	14	622	987	1,609	4	140	244	384
Bogra ..	2,780	Not known.	5	127	395	522	2	291	446	737
Pabna ..	2,539	169	9	482	1,326	1,808	3	266	349	615
Malda ..	2,239	181	6	471	6,044	6,515	2	29	1,939	1,968
Dacca ..	4,737	650	20	4,202	7,743	11,945	5	331	2,264	2,595
Mymensingh ..	7,354	448	19	2,696	2,455	5,151	6	1,074	2,953	4,027
Faridpur ..	3,363	476	13	2,132	4,235	6,367	4	2,466	3,541	6,007
Bakarganj ..	2,990	213	16	1,407	1,703	3,110	4	1,360	824	2,184
Chittagong ..	870	138	8	2,439	2,098	4,537	3	760	505	1,265
Noakhali ..	1,719	200	14	4,681	10,682	15,363	2	939	2,767	3,706
Tippura ..	4,018	296	11	4,449	8,095	12,544	3	3,518	6,094	9,612

11. **Inspections.**—The following table shows the details of inspections by the various inspecting agencies:—

returned a percentage of success above 90 in primary cases, while in revaccination the highest 87·7 and 81·2 were

Inspecting agencies.	Percentage of inspections to total number vaccinated.		Percentage of cases found successful to total number inspected.		Percentage of success reported by vaccinators.	
	Primary vaccination.	Revaccination.	Primary vaccination.	Revaccination.		
(1) District Health Officers and Civil Surgeons of Darjeeling and Chittagong Hill Tracts	2·9	1·1	96·1	66·3	92·5	59·05
(2) Municipal Superintendents of Vaccination and Municipal Sanitary Inspectors ..	1·9	1·9	92·4	36·7	..	..
(3) Assistant Superintendents of Vaccination, Rural Sanitary Inspectors and Assistant Health Officers ..	27·4	12·2	97·2	51·1	Primary	Revaccination

Comparatively high percentages of primary vaccination inspections were returned by the District Health Officers of Hooghly (36·9), Rangpur (17·6) and Malda (10·07) and of revaccinations by those of Rangpur (7·8) Dinajpur (7·4), and Burdwan (5·5). The Health Officer of Bogra district did not inspect a single vaccination while the District Health Officer of Mymensingh inspected only ·04 per cent. primary and ·01 per cent. revaccinations. The Municipal Superintendents and Sanitary Inspectors of Dinajpur and Bogra returned the highest percentages, 80·9 for primary and 89·6 for revaccination inspections, respectively, while only 4·7 per cent. primary and 3·7 revaccinations were inspected by these officers in Birbhum and Bakarganj municipalities, respectively. A hundred per cent. success to total number of primary vaccinations inspected, was returned each by the District Health Officers of Nadia, Murshidabad, Khulna and the Civil Surgeon of Darjeeling, and percentages of 97·6 and 93·1 in revaccinations, by those of Rangpur and Murshidabad, respectively. Turning to Municipal Inspecting Officers, a cent. per cent. success in primary cases was recorded in Birbhum, Jessore, Jalpaiguri, Faridpur and Chittagong and 74·3 and 73·3 in revaccinations in Hooghly and Burdwan, respectively. In Darjeeling alone, the success was found as low as 4·8 per cent. The rural inspecting staff of all the districts except Bogra, Malda and Bakarganj

recorded in Rangpur and Bankura, respectively. The lowest percentages were found by the rural staff of Bogra, 44·6 in primary cases and 27·6 in revaccinations. The vaccinators of all the districts but Bogra, Mymensingh and Noakhali, returned a success of above 90 per cent. in primary cases. In revaccinations, the highest percentages were noted by the vaccinators of Dinajpur, 73·6 and Rajshahi 71·9, and the lowest, 19·1 in Calcutta.

12. **Post vaccinal complications.**—With the introduction of the linear method of vaccination, the risk of sepsis has been reduced to a minimum. A few cases of Impetigo Contagiosa have been reported to have occurred after a long interval after vaccination and have been found on investigation to have no connection with the latter; in fact their occurrence in vaccinated cases generally coincides in point of time with the vaccination season and their number as compared with the total number of vaccinations performed has been so infinitesimal as not to justify any imputation against the purity of the lymph. Had the lymph employed anything to do with it, their number would have been far in excess of what it has been according to the reports of the various District Health Officers. Besides, a few cases of the same disease have been observed in unvaccinated persons in Calcutta. No case of post vaccinal encephalitis has ever been reported in this province.

13. Bengal Vaccine Depot.—Out of a total of 3,078 calves vaccinated during the year, including 58 buffalo calves, pulp was collected from 2,674, 329 being discharged as unfit for collection, 16 died and 59 carried over at the close of the year. The total output of lymph was 4,600,152 grains against 3,340,098 grains in the previous year and the average yield of pulp per calf was 282·48 grains against 250·76 in 1927-28. The collection from each buffalo calf was however 761·3 grains on an average. Out of a total stock of 4,848,263 grains made up of 4,600,152 grains manufactured during the year, 170,911 grains representing the previous year's balance and 77,200 grains in 15,440 capillary tubes purchased from Germany, 4,563,154 grains were issued against 3,574,274 grains in the previous year, leaving a closing balance of 284,809 grains. 123 stocks of lymph all chloroformed, were bottled, sampled and analysed bacteriologically at the Bengal Public Health Laboratory. Every grain of lymph issued from the depot was thus not only examined bacteriologically but tested for its potency on calves and human arms. Regeneration of lymph was done through rabbits, buffaloes and ideal calves. The supply being made to individual vaccinators, more than 200 packets had to be despatched daily throughout the season, and the services of 2 depot assistants besides the 2 clerks had to be utilised for this purpose. The total sale of lymph during the year amounted to Rs. 8,551-6-0 against Rs. 7,876-3-0 in the previous year. The total expenditure was Rs. 42,051-14-0 against Rs. 42,491-7-0 in the previous year. In addition to the manufacture of lymph, the services of the Superintendent and of the depot assistant S. N. Mazumdar were on many occasions requisitioned for human vaccination both at the Writers' Buildings as well as in other places. More than 250 cases were also vaccinated by them at the Calcutta Health Exhibition. Regular courses of lectures and demonstrations were given by the Superintendent at the two sessions of the Sanitary Inspectors' training class and to the senior students of the Calcutta Medical College. Special demonstrations and lectures were also given for about a week at the Calcutta Health Exhibition.

From the table below, it will be seen how the quantity of lymph manufactured at the depot has increased and the average yield of pulp per calf improved

since 1902-03—the year of the appointment of the present Superintendent in charge of the Vaccine Depot. The quantity has in fact increased 46-fold during the last 26 years, and the average yield of pulp per calf about five times, the average output of lymph during the present triennium being 3,540,238 grains against 2,046,856 grains in the previous one. This is indeed very satisfactory, but on the other hand, much difficulty is experienced in procuring the required number of calves, although the supply has certainly improved with the enhanced hire according to the new contract. The markets on this side have been quite exhausted and unless some other source of supply hitherto undiscovered is tapped, it will be next to impossible to cope with the ever-increasing demand for lymph in connection with the intensive campaigns of vaccination organised by every local body to meet the approaching apprehended pandemic.

Years.			Quantities manu- factured.	Average yield of pulp per calf.
			Grains.	Grains.
1902-03	..	..	103,470	59·81
1923-24	..	..	1,694,180	168·06
1924-25	..	..	1,975,780	182·14
1925-26	..	..	2,470,607	204·29
1926-27	..	..	2,680,464	201·09
1927-28	..	..	3,340,098	250·76
1928-29	..	..	4,600,152	282·48

14. General remarks.—With the near approach of the apprehended pandemic forecasted six years back by Dr. Bentley, nearly every district board acting on the wise precept “forewarned is forearmed” has been very busy throughout the year organising its staff and preparing its defences against smallpox by starting intensive campaigns of vaccination and revaccination wherever an epidemic has shown its face. It is, therefore, confidently expected that, whenever the pandemic comes, if it ever comes at all, it will not find the province unprepared. With the noble example of Malda before it, where helped by the District Magistrate and his subordinate officers, the District Health Officer managed to vaccinate

more than half of its population during the course of the year, every district is expected to endeavour, at least, not to lag behind if not to outpace it. But some sort of temporary emergency legislation to enforce revaccination and to amend the prosecution laws under the current Vaccination Act, seems to me to be a *sine qua non* of success, without which the revaccination of adults and primary vaccination of infants even within the prescribed limit of age during the course of the pandemic will be next to impossible. Happily, the question of satisfactory supervision, as necessary as the performance of vaccination itself, has been solved by the appointment of Sanitary Inspectors to every thana under the rural organisation scheme, which is

practically complete. The Government supervision is still a weak point, since with only two Inspectors of Vaccination at my disposal, it is absurd to think of the Public Health Department to keep a strict watch over every loophole through which the pandemic might penetrate the province. It is, therefore, essential that one such supervisor should be appointed to every division as has been suggested by me off and on in these reports.

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Statistical Return

STATEMENT

Showing Particulars of vaccination performed

Number.	District.	Population of the rural areas of the districts according to the Census of 1921.	Average population per square mile.	Average number of vaccinators employed throughout the year.	Total number of persons vaccinated.			Average number of persons vaccinated by each vaccinator.	Primary
					Male	Female.	Total.		
1	2	3	4	5	6	7	8	9	10
<i>Burdwan Division.</i>									
1	Burdwan Paid	1,343,185	500	30	53,108	35,587	88,695	2,956	47,512
2	Asansol Mining Settlement .. Paid	..	..	14	14,036	10,435	24,471	1,748	14,051
3	Birbhum Paid	838,655	479	20	34,655	25,346	60,001	3,000	30,535
4	Bankura Paid	964,487	369	44	37,635	27,050	64,685	1,470	41,617
5	Midnapur Paid	2,595,071	516	132	165,939	103,045	268,984	2,037	96,063
6	Hooghly Paid	900,802	780	20	30,981	16,258	47,239	2,362	23,699
7	Howrah Paid	778,893	1,502	24	31,823	14,084	45,907	1,912	26,700
	Total .. Paid	7,421,093	540	284	368,177	231,805	599,982	2,112	280,177
<i>Presidency Division.</i>									
8	24-Parganas Paid	1,998,318	527	156	105,292	69,445	174,737	1,120	108,916
9	Nadia Paid	1,390,704	507	46	64,915	43,977	108,892	2,365	55,685
10	Murshidabad Paid	1,182,983	566	59	211,999	149,744	361,743	6,131	55,460
11	Jessore Paid	1,700,924	587	101	107,082	71,315	178,397	1,766	42,713
12	Khulna Paid	1,421,116	301	53	84,167	63,206	147,373	2,781	59,790
	Total .. Paid	7,694,045	492	415	573,455	397,687	971,142	2,340	322,564
<i>Rajshahi Division.</i>									
13	Rajshahi Paid	1,457,037	557	48	95,050	60,881	155,931	3,248	24,488
14	Dinajpur Paid	1,687,328	428	68	93,083	57,336	150,419	2,212	84,977
15	Jalpaiguri Paid	921,749	314	31	40,888	21,471	62,359	2,011	27,010
16	Darjeeling Paid	254,045	215	25	18,904	15,870	34,774	1,391	10,034
17	Rangpur Paid	2,482,722	713	120	158,407	62,444	220,851	1,840	110,935
18	Bogra Paid	1,032,300	751	29	49,421	24,158	73,579	2,537	30,915
19	Pabna Paid	1,344,633	809	73	70,830	42,742	113,572	1,555	57,666
20	Malda Paid	955,830	523	65	287,309	211,120	498,429	7,668	29,771
	Total .. Paid	10,135,644	534	459	813,892	496,022	1,309,914	2,853	375,796
<i>Dacca Division.</i>									
21	Dacca Paid	2,975,915	1,097	96	163,630	110,094	273,724	2,851	142,341
22	Mymensingh Paid	4,703,249	759	238	325,246	193,884	519,130	2,181	269,646
23	Faridpur Paid	2,202,783	934	53	99,561	59,517	159,078	3,001	65,904
24	Bakarganj Paid	2,563,849	734	55	125,680	81,074	206,754	3,759	166,633
	Total .. Paid	12,445,796	845	442	714,117	444,569	1,158,686	2,619	644,524
<i>Chittagong Division.</i>									
25	Chittagong Paid	1,570,760	630	60	116,933	69,390	186,323	3,105	83,091
26	Noakhali Paid	1,465,071	968	45	159,188	78,295	237,483	5,277	89,286
27	Tippera Paid	2,678,627	1,051	116	226,822	152,086	378,908	3,263	134,580
28	Chittagong Hill Tracts .. Paid	173,243	34	11	10,809	8,795	19,604	1,782	7,846
	Total .. Paid	5,887,701	503	232	513,752	308,566	822,318	3,544	314,803
	Total of the Bengal Presidency Paid	43,584,279	578	1,832	2,983,393	1,878,649	4,862,042	2,653	1,937,864

Sum

	Total number of persons vaccinated.		Total number of operation performed.	
	Primary.	Re-vaccination.	Primary	Re-vaccination.
District Boards, Municipalities, Provincial Government, Calcutta Corporation and Asansol Mines Board of Health	2,024,705	3,134,310	2,026,734	3,135,883
Jails, Cantonments, Dispensaries, Railways, Steamers, Tea-Gardens and Factories	24,070	93,319	24,093	93,319
Total	2,048,775	3,227,629	2,050,827	3,229,202

No. 1.

in the districts of Bengal during the year 1928-29.

vaccination.				Re-vaccination			Percentage of successful cases in which results were known.		Persons successfully vaccinated per 1,000 of populations	Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during the previous five years.		Average annual number of deaths from small-pox during the previous five years.	
Successful.			Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.		Primary.	Re-vaccination.	Number.	Ratio per 1,000 of population.	Number.	Ratio per 1,000 of population.
Under one year.	One year and under six years.	Total of all ages.													
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
4,136	27,848	44,616	329	41,185	19,676	1,522	93·9	47·7	63·3	·69	3·6	85,991	64·005	1,038	·7
4,441	8,941	14,040	..	10,420	6,883	172	99·9	66·05	..	..	1·6	..	..	..	..
4,272	22,422	29,449	274	29,466	16,620	2,519	96·4	56·4	54·9	·89	8·5	45,160	53·8	676	·8
8,923	29,983	40,407	340	23,068	10,046	1,972	97·08	43·5	52·3	·82	8·5	48,624	50·4	286	·3
9,031	56,939	87,704	5,554	172,921	92,257	32,026	91·3	53·3	69·3	5·7	18·5	151,966	58·5	2,016	·7
3,086	18,080	23,036	147	23,540	1,226	1,547	97·1	68·9	43·5	·62	6·5	31,679	35·1	647	·7
4,978	19,294	25,890	326	19,207	9,051	3,823	96·9	47·1	44·8	1·2	19·9	31,284	40·1	1,229	1·6
38,867	183,507	265,142	6,970	319,807	170,759	43,581	94·6	53·3	58·7	2·4	13·6	394,704	53·1	5,893	·8
15,739	72,633	102,809	2,468	65,821	39,439	4,484	94·3	59·9	71·1	2·2	6·8	97,323	49	1,773	·9
18,235	32,495	52,893	1,158	53,207	34,497	4,938	94·9	64·8	62·8	2·08	9·2	61,370	44·1	316	·2
19,365	29,767	52,278	1,066	306,283	167,417	47,068	94·2	54·6	185·7	1·9	15·3	72,668	61·4	1,425	1·2
5,422	33,257	41,870	194	135,686	80,535	14,593	98·	59·3	71·9	·45	10·7	63,037	37·06	268	·1
12,256	36,575	58,821	327	87,801	46,045	10,667	98·3	52·4	73·7	·54	12·1	60,677	42·7	82	·05
71,017	204,727	308,671	5,213	648,798	367,933	81,750	95·7	56·7	87·9	1·6	12·6	355,075	46·1	3,864	·5
9,257	13,652	23,892	381	131,473	94,562	13,645	97·5	71·9	81·2	1·5	10·3	70,888	59·2	146	·1
14,890	49,248	77,922	2,098	65,442	48,211	4,823	91·7	73·6	74·7	2·4	7·3	90,451	53·6	549	·3
12,659	10,618	25,577	20	36,301	15,619	2,548	94·6	43·03	44·6	·07	7·02	33,479	36·3	201	·2
3,656	4,343	9,291	640	24,876	9,346	7,383	92·6	37·5	73·3	6·3	29·6	13,100	51·5	12	·04
11,039	80,755	102,896	4,946	109,923	90,353	7,132	92·7	82·1	77·6	4·4	6·4	89,586	36·9	939	·3
2,895	17,795	25,972	2,949	42,664	14,906	11,768	84·	34·9	39·6	9·5	27·5	35,832	34·8	1,073	1·03
7,077	4,119	54,082	858	55,906	27,847	6,531	93·7	49·8	23·7	1·4	11·6	74,895	55·7	1,686	1·2
12,529	13,557	27,275	1,725	468,658	323,228	94,594	91·6	68·9	366·7	5·7	20·1	62,067	64·6	501	·5
74,002	194,087	346,907	13,617	935,243	624,072	148,424	92·3	66·7	95·7	3·6	15·8	470,298	46·4	5,107	·5
9,143	103,158	130,964	5,825	131,383	65,537	16,343	92·	49·8	66·03	4·09	12·4	122,708	39·2	1,060	·3
7,795	147,534	234,788	15,735	249,484	158,722	29,202	87·07	63·6	83·5	5·8	11·7	294,098	62·4	1,353	·2
3,525	41,969	63,287	1,400	93,187	40,869	15,795	99·05	43·8	47·2	2·1	16·9	67,919	30·7	342	·1
2,050	80,185	157,746	4,332	40,121	25,627	2,910	94·6	63·8	71·5	2·6	7·2	96,745	46·5	102	·4
22,513	372,846	586,785	27,292	514, 175	290,755	64,250	91·04	56·5	70·4	4·2	12·4	581,470	46·7	2,857	·2
7,021	67,755	79,508	1,056	103,232	41,393	12,698	95·6	40·1	76·9	1·2	12·3	80,000	50·9	791	·5
9,129	51,371	73,291	11,966	148,259	56,509	52,469	82·08	38·1	88·5	13·4	35·3	81,858	55·7	325	·2
10,243	96,507	125,288	4,403	246,078	171,386	22,645	93·08	69·6	110·7	3·2	9·2	150,317	56·7	440	·1
366	5,677	7,771	19	11,758	5,906	257	99·04	50·2	78·9	·24	2·1	8,004	46·2	..	..
26,759	221,310	285,858	17,444	509,327	275,194	88,069	90·8	54·02	95·3	5·5	17·2	320,179	54·4	1,556	·2
233,158	1,176,477	1,793,363	70,536	2,927,350	1,728,713	426,074	92·5	59·05	80·7	3·6	14·5	2,121,726	48·6	19,277	·4

mary

Percentage of successful cases in which results were known.		Average number of persons vaccinated by each vaccinator.		Number of children successfully vaccinated.		Rates of successful vaccinations per 1,000 of population.	Total cost of department.	Average cost of each successful case.
Primary.	Re-vaccination.	Vaccina-tors employed.	Persons vaccinated by each vaccina or.	Under one year.	One year and six years.			
92·4	57·07	2,046	2,522	262,982	1,222,631	79·7	4,84,635 10 11	0 1 7
87·8	37·4	No statistics available.		nil	nil			
92·4	56·5	..	..	262,982	1,222,631			

STATEMENT

Showing the cost of vaccination in the districts of

1 Number.	2 Circles and districts.	3 Superior officers.	4 Salary.	5 Indian supervising officers.	6 Pay.	7 Paid vaccinators.	8 Pay.	9 Licensed vaccina- tors.	10 Pay.	11 Clerks.	12 Pay.	13 Peons.	14 Pay.	15 Total pay of establishment.
					Rs. A. P.		Rs. A. P.						Rs. A. P.	Rs. A. P.
<i>Burdwan Division.</i>														
1	Burdwan .. ..	..	....	10	2,885 0 0	44	13,221 6 10	..	..	..	....	2	324 0 0	16,430 6 10
2	Birbhum .. ..	..	....	3	1,086 11 0	20	3,184 0 8	..	..	..	....	..	....	4,270 11 8
3	Bankura .. ..	..	....	2	1,130 0 0	44	3,116 5 0	..	..	..	....	..	....	4,246 5 0
4	Midnapur .. ..	..	....	6	2,445 12 1	132	12,769 5 6	..	..	..	....	..	....	15,215 1 7
5	Hooghly .. ..	..	....	3	1,151 0 0	20	2,020 14 0	..	..	..	....	..	....	3,171 14 0
6	Howrah .. ..	..	....	2	1,978 2 0	24	4,257 12 6	..	..	..	....	..	....	6,235 14 6
	Total .. ..	..	....	26	10,676 9 1	284	38,569 12 6	..	..	..	....	2	324 0 0	49,570 5 7
<i>Presidency Division.</i>														
7	24-Parganas ..	..	....	5	3,773 5 4	156	10,816 2 0	..	..	..	....	..	....	14,589 7 4
8	Bengal Vaccine Depot ..	..	....	8	10,993 11 0	..	....	..	..	2	1,581 4 0	2	374 13 0	12,949 12 0
9	Calcutta .. ..	..	....	18	26,950 0 0	60	42,310 0 0	..	..	..	....	30	5,580 0 0	74,840 0 0
10	Nadia .. ..	..	....	6	2,588 1 0	46	4,557 14 0	..	..	..	....	..	....	7,145 15 0
11	Murshidabad ..	..	....	5	2,160 0 0	59	11,379 1 0	..	..	..	....	..	....	13,539 1 0
12	Jessore .. ..	..	....	2	1,059 6 0	101	7,969 1 0	..	..	..	....	..	....	9,028 7 0
13	Khulna .. ..	..	....	3	1,871 0 0	53	2,814 15 6	..	..	..	....	..	....	4,685 15 6
	Total .. ..	..	....	47	49,395 7 4	475	79,847 1 6	..	..	2	1,581 4 0	32	5,954 13 0	136,778 9 10
<i>Rajshahi Division.</i>														
14	Rajshahi .. ..	..	....	3	1,440 0 0	48	5,781 1 0	..	..	..	....	..	....	7,221 1 0
15	Dinaipur .. ..	..	....	3	1,510 0 0	68	10,252 11 0	..	..	..	....	..	....	11,762 11 0
16	Jalpaiguri .. ..	..	....	2	1,104 3 8	31	4,168 14 0	..	..	..	....	..	....	5,273 1 8
17	Darjeeling (a) ..	..	....	3	1,590 0 0	25	2,981 3 0	..	..	..	....	..	....	4,571 3 0
18	Rangpur (b) ..	..	....	5	3,459 12 0	120	10,596 8 0	..	..	..	....	..	....	14,056 4 0
19	Bogra .. ..	..	....	2	1,020 0 0	29	3,679 11 6	..	..	..	....	..	....	4,699 11 6
20	Pabna .. ..	..	....	3	1,657 12 0	73	6,734 15 0	..	..	..	....	..	....	8,392 11 0
21	Malda (c) .. ..	..	....	3	1,486 10 6	65	14,092 13 1	..	..	..	....	..	....	15,579 7 7
	Total .. ..	..	....	24	13,268 6 2	459	58,287 12 7	..	..	..	....	..	....	71,556 2 9
<i>Dacca Division.</i>														
22	Dacca .. ..	..	....	5	2,166 3 1	96	5,629 15 4	..	..	..	....	..	....	7,796 2 5
23	Mymensingh ..	..	....	6	3,256 14 0	238	23,116 13 6	..	..	..	....	..	....	26,373 11 6
24	Faridpur .. ..	..	....	5	2,100 0 0	53	3,042 15 0	..	..	..	....	..	....	5,142 15 0
25	Bakarganj .. ..	..	....	4	1,755 5 0	55	6,164 11 0	..	..	..	....	..	....	7,920 0 0
	Total .. ..	..	....	20	9,278 6 1	442	37,954 6 10	..	..	..	....	..	....	47,232 12 11
<i>Chittagong Division.</i>														
26	Chittagong .. ..	..	....	3	1,465 13 0	60	9,534 0 0	..	..	..	....	..	....	10,999 13 0
27	Noakhali .. ..	..	....	3	1,395 0 0	45	5,163 8 0	..	..	..	....	..	....	6,558 8 0
28	Tippera .. ..	..	....	3	1,320 0 0	116	7,274 9 0	..	..	..	....	..	....	8,594 9 0
29	Chittagong Hill Tracts	..	....	3	1,680 0 0	11	1,654 15 0	..	..	..	....	..	....	3,334 15 0
	Total .. ..	..	....	12	5,860 13 0	232	23,627 0 0	..	..	..	....	..	....	29,487 13 0
	Total of the Vaccination Circles.	..	....	129	88,479 9 8	1,892	2,38,286 1 5	..	..	2	1,581 4 0	34	6,278 13 0	3,34,625 12 1
30	Vaccination Bureau ..	1	14,300 0 0	2	4,150 0 0	..	....	..	..	..	....	..	....	18,450 0 0
	Total of the Presidency	1	14,300 0 0	131	92,629 9 8	1,892	2,38,286 1 5	..	..	2	1,581 4 0	34	6,278 13 0	3,53,075 12 1
31	Municipalities ..	..	....	2	1,398 0 0	154	30,757 1 0	..	..	..	....	2	504 0 0	32,659 1 0
32	Railways, Tea gardens and factories ..	..	....	..	....	..	....	..	..	..	....	..	....	....
33	Jails .. ..	..	....	..	....	..	....	..	..	..	....	..	....	....
	Grand total	1	14,300 0 0	133	94,027 9 8	2,046	2,69,043 2 5	..	..	2	1,581 4 0	36	6,782 13 0	3,85,734 13 1

(a) 16 temporary vaccinators were
(b) One Kabiraj was appointed by the
(c) One Special Inspector of Vaccination

No. II.
Bengal during the year 1928-29.

Travelling allowance.	Contingencies.		Total cost.	Central revenues.	Provincial revenues.	Local fund.	Municipalities and Railways.	Native States.	Total.	Number of successful vaccinations and re-vaccinations.	Average cost of successful case.
	Cost of lymph.	Other contingencies.									
16	17	18	19	20	21	22	23	24	25	26	27
Rs. A. P.	Rs.	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.	Rs. A. P.		Rs. A. P.		Rs. A. P.
3,210 14 1	..	3,049 15 7	22,691 4 6	..	6,893 3 7	15,798 0 11	....	..	22,691 4 6	85,215	0 4 6
835 14 6	..	134 12 6	5,241 6 8	..	1,909 11 6	3,331 11 2	....	..	5,241 6 8	46,069	0 1 9
717 4 0	..	65 8 6	5,029 1 6	..	2,513 4 0	2,515 13 6	....	..	5,029 1 6	50,453	0 1 6
2,050 0 0	..	417 8 6	17,682 10 1	..	4,126 12 1	13,555 14 0	....	..	17,682 10 1	179,961	0 1 7
666 1 0	..	178 6 0	4,016 5 0	..	2,096 0 0	1,920 5 0	....	..	4,016 5 0	39,262	0 1 7
....	..	243 14 0	6,479 12 6	..	1,978 2 0	4,501 10 6	....	..	6,479 12 6	34,941	0 2 11
7,480 1 7	..	4,090 1 1	61,140 8 3	..	19,517 1 2	41,623 7 1	....	..	61,140 8 3	435,901	0 2 2
1,891 3 0	..	1,061 4 3	17,541 14 7	..	6,260 0 0	11,281 14 7	....	..	17,541 14 7	142,248	0 1 11
64 1 0	4,201 12	24,836 5 0	42,051 14 0	..	42,051 14 0	....	....	..	42,051 14 0	....	..
1,920 0 0	..	12,874 0 0	89,634 0 0	..	....	....	89,634 0 0	..	89,634 0 0	38,572	2 5 1
2,083 2	..	273 10 0	9,502 11 0	..	4,655 4 0	4,847 7 0	....	..	9,502 11 0	87,390	0 1 6
2,070 5 0	..	210 10 0	15,820 0 0	..	8,230 5 0	7,589 11 0	....	..	15,820 0 0	219,695	0 1 2
833 3 0	..	374 15 0	10,236 9 0	..	4,892 9 0	5,344 0 0	....	..	10,236 9 0	122,405	0 1 4
1,459 13 0	..	116 0 0	6,261 12 6	..	3,330 13 0	2,930 15 6	....	..	6,261 12 6	104,866	0 0 11
10,321 11 0	4,201 12	39,746 12 3	1,91,048 13 1	..	69,420 13 0	31,994 0 1	89,634 0 0	..	1,91,048 13 1	715,176	0 4 3
1,580 3 0	..	2,079 6 0	10,880 10 0	..	7,378 1 0	3,502 9 0	....	..	10,888 10 0	118,454	0 1 5
1,063 5 0	..	148 10 0	12,974 10 0	..	2,573 5 0	10,401 5 0	....	..	12,974 10 0	126,133	0 1 7
986 8 0	..	559 9 3	6,819 2 11	..	2,831 7 0	3,987 11 11	....	..	6,819 2 11	41,196	0 2 7
2,999 8 0	..	370 6 0	7,941 1 0	..	3,748 11 0	4,192 6 0	....	..	7,941 1 0	18,637	0 6 9
1,635 14 0	..	704 10 0	16,396 12 0	..	8,256 5 0	8,140 7 0	....	..	16,396 12 0	193,249	0 1 4
627 6 0	..	69 9 6	5,396 11 0	..	1,701 3 6	3,695 7 6	....	..	5,396 11 0	40,878	0 2 1
466 1 0	..	311 8 6	9,170 4 6	..	2,172 1 0	6,998 3 6	....	..	9,170 4 6	81,929	0 1 9
1,030 10 6	..	460 12 0	17,070 14 1	..	8,831 12 0	8,239 2 1	....	..	17,070 14 1	350,503	0 0 9
10,389 7 6	..	4,704 7 3	86,650 1 6	..	37,492 13 6	49,157 4 0	....	..	86,650 1 6	970,979	0 1 5
1,133 14 0	..	313 4 3	9,243 4 8	..	4,300 1 1	4,943 3 7	....	..	9,243 4 8	196,501	0 0 9
2,104 13 0	..	290 2 0	28,768 10 6	..	7,761 11 0	21,006 15 6	....	..	28,768 10 6	393,510	0 1 2
1,816 0 0	..	522 4 0	7,481 3 0	..	5,746 0 0	1,735 3 0	....	..	7,481 3 0	104,156	0 1 1
1,361 8 0	..	289 12 0	9,571 4 0	..	4,467 3 0	5,104 1 0	....	..	9,571 4 0	183,373	0 0 11
6,416 3 0	..	1,415 6 3	55,064 6 2	..	22,274 15 1	32,789 7 1	....	..	55,064 6 2	877,540	0 0 7
806 12 0	..	288 0 0	12,094 9 0	..	2,272 9 0	9,822 0 0	....	..	12,094 9 0	120,901	0 1 7
780 0 0	..	36 3 0	7,374 11 0	..	4,445 11 0	2,929 0 0	....	..	7,374 11 0	129,800	0 0 11
1,572 10 0	..	207 0 0	10,374 3 0	..	3,371 1 0	7,003 2 0	....	..	10,374 3 0	296,674	0 0 6
1,330 5 0	..	50 0 0	4,715 4 0	..	4,715 4 0	....	....	..	4,715 4 0	13,677	0 4 9
4,489 11 0	..	581 3 0	34,558 11 0	..	14,804 9 0	19,7 4 2 0	....	..	34,558 11 0	561,052	0 0 11
39,097 2 1	4,201 12	50,537 13 10	4,28,462 8 0	..	1,63,510 3 9	1,75,318 4 3	89,634 0 0	..	4,28,462 8 0	3,560,648	0 1 11
3,205 6 2	21,655 6 2	..	21,655 6 2	..	....	....	21,655 6 2	..	..
42,302 8 3	4,201 12	50,537 13 10	4,50,117 14 2	..	1,85,165 9 11	1,75,318 4 3	89,634 0 0	..	4,50,117 14 2	3,560,648	0 1 3
623 9 0	..	1,235 2 9	34,517 12 9	..	....	....	34,517 12 9	..	34,517 12 9	104,646	0 5 1
....	49,269	..
....	15,624	..
42,926 1 3	4,201 12	51,773 0 7	4,84,635 10 11	..	1,85,165 9 11	1,75,318 4 3	1,24,151 12 9	..	4,84,635 10 11	3,730,187	0 1 7

appointed.
District Board for Smallpox work.
was appointed by Malda District Board

STATEMENT No. III.

Showing particulars of vaccination performed by vaccinators attached to municipalities, dispensaries and other agencies in the Presidency of Bengal during the year 1928-29.

Number.	Districts.	Number of municipalities, dispensaries, etc., in each district to which a vaccinator is attached.	Number of vaccinators attached to each municipality, dispensary, etc., during the year.	Total number of persons vaccinated.	Average number of persons vaccinated by each vaccinator.	Number of cases primarily vaccinated.					Number of cases re-vaccinated.			Percentage of successful cases in which results were known.		Percentage of unknown cases to total cases.	
						Total.	Successful.			Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.	Primary.	Re-vaccination.
							Under one year.	One year and under six years.	Total of all ages.								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Burdwan ..	6	7	7,717	1,102	3,106	852	1,543	2,910	56	4,611	2,735	200	93·6	59·3	1·8	4·3
2	Birbhum ..	1	1	303	303	191	21	149	180	..	112	46	..	94·2	41·06	..	..
3	Bankura ..	3	3	3,972	1,324	2,202	337	1,548	2,152	..	1,770	235	9	97·7	13·2	..	·5
4	Midnapur ..	7	8	3,756	469	1,631	222	1,047	1,548	12	2,125	1,138	50	94·9	53·5	..	2·3
5	Hooghly ..	10	16	14,412	900	5,545	1,326	3,347	5,079	255	8,867	5,515	1,688	91·6	62·1	4·6	19·03
6	Howrah ..	2	10	11,927	1,192	4,683	1,775	2,293	4,241	140	7,244	2,868	322	63·4	39·5	2·09	4·4
7	24-Parganas	25	31	24,153	779	14,360	3,779	7,979	13,826	162	9,866	4,999	984	96·2	50·6	1·1	9·9
8	Calcutta ..	1	60	106,152	1,769	23,877	13,051	9,290	22,849	556	82,275	15,723	17,693	95·6	19·1	2·3	21·5
9	Nadia ..	9	12	6,565	547	3,004	504	1,887	2,577	159	3,564	1,454	999	85·7	40·7	5·2	28·02
10	Murshidabad	6	7	6,566	938	2,337	721	1,361	2,142	15	4,235	1,469	203	91·6	34·6	·64	4·7
11	Jessore ..	3	3	726	242	440	31	361	436	3	286	137	12	99·08	47·9	·68	4·2
12	Khulna ..	3	3	1,795	598	965	277	604	944	1	830	231	92	97·8	27·8	·10	11·08
13	Rajshahi ..	2	3	4,549	1,516	1,319	495	761	1,266	14	3,230	814	851	95·9	25·2	1·06	26·3
14	Dinaipur ..	1	1	7,602	7,602	1,132	266	631	1,126	..	6,470	3,014	865	99·4	46·5	..	13·3
15	Jalpaiguri ..	1	1	1,093	1,093	467	322	123	467	..	626	172	79	100·	27·4	..	12·6
16	Darjeeling ..	2	2	26,928	13,464	1,807	1,020	476	1,737	70	25,211	6,662	8,527	96·2	26·4	3·8	33·8
17	Rangpur ..	2	2	2,129	1,064	929	101	731	891	10	1,200	539	139	95·9	44·9	1·08	11·5
18	Bogra ..	2	4	7,829	1,957	772	380	281	741	6	7,057	989	2,771	96·1	14·01	·78	39·2
19	Pabna ..	2	2	3,953	1,976	2,023	512	1,172	1,871	16	1,930	694	115	92·4	35·9	·79	5·9
20	Malda ..	3	5	8,303	1,661	957	353	489	860	13	7,349	2,082	1,135	89·8	28·3	1·3	15·4
21	Dacca ..	2	7	21,942	3,134	7,129	2,153	3,618	5,604	281	14,937	4,574	2,954	78·6	30·6	3·9	19·7
22	Mymensingh	9	8	6,391	799	2,534	215	1,768	2,174	198	3,857	1,105	662	85·1	28·6	7·7	17·1
23	Faridpur ..	3	3	2,530	843	1,683	231	1,177	1,554	16	860	127	180	92·3	14·7	·95	20·9
24	Bakarganj ..	6	6	4,932	822	2,074	347	1,071	1,946	68	2,858	1,691	297	93·8	59·1	3·2	10·3
25	Chittagong	2	5	6,157	1,231	1,436	209	973	1,277	43	4,721	1,062	900	88·9	22·4	2·9	19·06
26	Noakhali ..	1	1	988	988	382	13	295	347	17	606	247	147	90·8	40·7	4·4	24·2
27	Tippera ..	3	3	3,603	1,201	1,885	311	1,179	1,595	22	1,836	556	379	84·6	30·2	1·1	20·6
	Total	117	214	296,973	1,388	88,870	29,824	46,154	82,340	2,133	208,533	60,878	42,253	90·6	29·1	2·3	20·2
	Vaccinations performed by—																
28	Railways ..	..	..	21,170	..	6,404	..	..	4,620	34	14,766	9,219	554	72·1	62·4	·53	3·7
29	Steamers ..	..	..	1,879	..	..	..	..	..	..	1,879	..	1,879	..	..	..	100
30	Tea gardens	..	..	33,067	..	9,675	..	..	9,012	280	23,415	11,321	5,534	93·1	43·3	2·8	23·6
31	Factories ..	..	..	29,947	..	7,930	..	..	7,463	..	22,017	7,615	..	94·1	34·5	..	..
32	Dispensaries	..	..	27	..	8	..	..	7	1	19	12	7	87·5	63·1	12·5	36·8
33	Jails ..	..	55	31,299	569	76	..	..	72	2	31,223	15,552	3,328	94·7	49·8	2·6	10·6
	GRAND TOTAL	117	269	414,362	1,541	112,963	29,824	46,154	103,514	2,450	301,852	104,597	53,555	90·02	34·6	2·1	19·6

STATEMENT No. VI

Showing, side by side, the ratios per mille of population of deaths from small-pox and the number of successful vaccinations during the ten years ending 1928-29.

District.	1919-20.		1920-21.		1921-22.		1922-23.		1923-24.		1924-25.		1925-26.		1926-27.		1927-28.		1928-29.		
	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	
1																					
Burdwan	.45	110,575	.34	83,234	.08	77,293	.07	61,625	.09	70,208	.52	92,481	1.00	141,733	1.2	95,777	.72	77,742	.77	91,445	
Birbhum	.34	33,109	.44	27,146	.05	11,370	.07	20,915	.03	22,776	.11	45,598	1.00	41,778	1.6	62,195	1.20	59,195	.31	46,637	
Bankura	.21	51,345	.15	45,093	.01	48,368	.05	49,218	.03	44,891	.18	46,661	.58	61,252	.36	53,415	.23	51,272	.19	52,840	
Midnapur	.57	116,348	.37	108,408	.21	96,661	.33	128,029	.09	112,358	.17	121,207	.59	143,575	1.2	145,873	1.70	271,278	.92	183,599	
Hooghly	1.18	50,363	.36	43,566	.07	34,270	.09	33,912	.06	30,468	.39	41,717	.45	41,794	.73	47,150	.85	44,899	.71	50,507	
Howrah	1.48	42,839	.65	26,585	.29	29,635	.24	24,526	.06	36,726	.63	41,989	2.00	42,875	1.9	34,753	1.51	35,924	.30	42,133	
24-Parganas	.82	111,302	.46	81,634	.08	72,708	.12	90,323	.11	99,751	.70	110,916	.86	127,161	1.3	105,115	.88	149,897	.35	164,434	
Calcutta	4.39	114,070	.55	19,511	.34	42,695	.35	28,617	.06	20,251	2.51	106,242	1.76	56,042	2.2	77,359	1.08	39,754	.42	38,572	
Nadia	.93	71,572	.38	46,325	.04	46,020	.05	58,850	.02	50,646	.5	61,106	.20	68,610	.32	60,442	.45	83,948	.69	91,636	
Murshidabad	.33	40,410	.88	40,484	.40	34,568	.16	43,769	.04	45,464	.03	46,712	.75	77,366	2.4	103,853	2.35	112,182	1.87	223,870	
Jessore	.20	78,865	.36	71,919	.09	61,592	.04	63,118	.01	53,295	.05	66,202	.20	63,033	.27	65,153	.22	64,404	.11	122,989	
Khulna	.10	63,547	.08	56,202	.009	64,244	.01	62,904	.009	50,529	.03	71,232	.05	63,337	.10	59,659	.08	68,148	.03	107,011	
Rajshahi	.69	114,703	.74	112,823	.04	53,797	.04	63,648	.07	52,187	.04	72,171	.22	73,334	.11	84,563	.21	85,102	.55	120,738	
Dinajpur	.81	111,411	.89	75,518	.28	82,359	.05	82,457	.008	75,006	.04	71,440	.04	89,749	.40	97,809	.93	124,230	.86	130,579	
Jalpaiguri	.68	42,083	.65	34,190	.44	24,962	1.36	34,671	.51	31,602	.28	31,651	.02	33,602	.17	31,535	.07	44,886	.06	42,343	
Darjeeling	.48	32,004	.43	19,162	.00	15,935	.09	15,763	.01	16,320	.02	13,500	.07	23,528	.02	14,728	.07	14,142	.30	27,058	
Rangpur	2.67	187,426	.28	79,573	.31	31,626	.09	71,797	.009	75,398	.04	54,923	.24	82,748	.52	104,140	1.04	143,808	.83	195,466	
Bogra	2.78	43,897	1.38	37,303	.05	25,169	.005	22,621	.02	33,876	.41	31,746	.55	34,791	1.5	40,684	2.58	41,588	1.18	42,740	
Pabna	1.84	91,315	.28	47,138	.02	28,651	.002	48,745	.01	28,831	.04	44,559	.48	54,870	3.09	117,116	2.42	140,844	.39	84,494	
Malda	.89	49,999	.54	56,726	.12	37,844	.09	45,506	.04	38,308	.18	57,821	.19	52,534	.57	61,239	1.55	109,382	2.37	353,700	
Dacca	1.17	167,421	.82	132,929	.24	71,139	.29	97,044	.22	101,516	.17	127,386	.24	140,485	.21	147,745	.84	137,186	2.67	209,044	
Mymensingh..	.52	243,892	.50	239,908	.23	153,123	.22	203,223	.10	251,904	.14	271,481	.13	316,229	.32	320,817	.68	316,250	1.33	397,791	
Faridpur	.77	203,098	.47	109,802	.06	59,390	.01	48,354	.007	41,167	.03	50,604	1.08	73,338	.16	86,759	.44	99,775	1.71	106,503	
Bakarganj	.19	162,083	.13	138,694	.01	54,754	.006	58,875	.004	69,415	.02	93,922	.03	98,943	.05	104,265	.07	135,215	1.10	187,809	
Chittagong	.10	56,912	.10	62,604	.27	59,571	.53	65,560	.47	81,266	.27	80,827	.31	88,071	.36	70,469	1.01	90,520	2.13	123,482	
Noakhali	.46	79,741	.34	59,473	.02	44,168	.09	49,711	.03	63,175	.06	69,557	.24	89,585	.27	83,883	.49	110,503	.21	130,606	
Tippera	1.06	146,960	.47	132,940	.08	138,223	.04	147,535	.02	156,062	.02	135,715	.10	144,715	.23	138,946	.41	191,211	1.16	299,215	
Chittagong Hill Tracts..	Not under registration.	8,050	Not under registration.	8,550	Not under registration.	7,731	Not under registration.	8,522	Not under registration.	6,790	Not under registration.	8,309	Not under registration.	10,099	Not under registration.	7,616	Not under registration.	7,176	Not under registration.	.22	13,677
Dispensary, Railway, Tea Garden and Factory Vaccination.	..	30,646	..	8,752	..	9,366	..	8,548	..	39,681	..	30,438	..	37,127	..	32,032	..	53,403	..	49,269	
Total	.90	2,636,589	.48	2,006,692	.14	1,516,502	.16	1,738,386	.08	1,790,927	.22	2,006,383	.4	2,395,739	.68	2,458,200	.85	2,906,964	.94	3,730,187	

STATEMENT No. VII.

Showing the protection afforded to infants in each town in the Presidency of Bengal during the year 1928-29.

District.	Town	Number of births during the year.	Number of deaths amongst children under one year during the year.	Number of successful vaccinations on children under one year during the year ending 31st March 1929.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Burdwan	Burdwan ..	281	32	162	1st July 1883.
	Kalna ..	192	30	103	1st " "
	Katwa ..	81	11	77	1st " "
	Dainhat ..	83	7	74	1st " "
	Raniganj ..	373	53	204	1st " "
	Asansol ..	474	74	232	14th September 1910.
	Total ..	1,484	207	852	
Birbhum ..	Suri ..	125	16	21	1st July 1881.
Bankura	Bankura ..	442	44	204	1st July 1883.
	Vishnupur ..	469	54	14	1st " "
	Sonamukhi ..	340	51	119	6th June 1892.
	Total ..	1,251	149	337	
Midnapur	Midnapur ..	548	27	97	1st July 1883.
	Ghatal ..	360	32	75	1st " "
	Kharar ..	104	13	..	16th August 1889.
	Chandrakona ..	141	35	..	1st July 1883.
	Ramjibanpur ..	146	15	..	1st " "
	Khirpai ..	79	16	9	1st " "
	Tamluk ..	166	17	41	1st " "
	Total ..	1,544	155	222	
Hooghly	Hooghly-Chinsura	864	164	337	1st September 1881.
	Bansberia ..	91	16	17	1st July 1883.
	Arambagh ..	131	34	19	11th February 1889.
	Serampur ..	655	72	411	1st March 1883.
	Uttarpara ..	192	24	74	1st April "
	Kotrung ..	150	21	37	1st July "
	Baidyabati ..	407	52	172	1st " "
	Bhadreswar ..	339	61	161	1st " "
	Rishra-Konnagar ..	388	53	83	(It formerly formed a part of the Serampur Municipality.)
	Champdani ..	340	30	15	(It formerly formed a part of the Baidyabati and Bhadreswar Municipalities.)
	Total ..	3,557	527	1,326	
Howrah	Howrah ..	4,861	1,374	1,589	1st April 1882.
	Bally ..	385	39	186	1st October 1884.
	Total ..	5,246	1,413	1,775	
	Total of the Burdwan Division ..	13,207	2,467	4,533	
24-Parganas	South Suburban ..	877	138	745	1st October 1883.
	Tollyganj ..	457	56	462	1st " " (It formerly formed a part of the South Suburban Municipality.)

District.	Town.	Number of births during the year.	Number of deaths amongst children under one year during the year.	Number of successful vaccinations on children under one year during the year ending 31st March 1929.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
24 Parganas— <i>concd.</i>	Budge-Budge ..	301	9	172	18th February 1902.
	Baranagar ..	794	105	260	1st October 1883.
	Kamarhati ..	386	32	196	1st " "
					(It formerly formed a part of the Baranagar Municipality.)
	Rajpur ..	285	36	29	1st October 1883.
	Baruipur ..	64	10	51	1st " "
	Jaynagar ..	84	11	11	1st " "
	North Dum-Dum ..	133	17	3	1st " "
	South Dum-Dum ..	313	52	148	1st " "
	Khardah ..	103	6	33	1st " "
	Barrackpur includ- ing Barrackpur Cantonment.	188	14	45	(They formerly formed parts of the South Barrackpur Muni- cipality.)
	Panihati ..	288	38	197	
	North Barrackpur	319	33	149	1st October 1883.
	Titagarh ..	700	55	210	1st " "
					(It formerly formed a part of the South Barrackpur Muni- cipality.)
	Garulia ..	190	32	49	1st October 1883.
					(It formerly formed a part of the North Barrack- pur Municipality.)
	Naihati ..	365	46	94	1st October 1883.
	Halisahar ..	93	13	..	1st " "
	Kanchrapara ..	306	12	3	(They formerly formed parts of the Naihati Municipality.)
	Bhatpara ..	1,237	157	360	
	Barasat ..	105	11	20	1st October 1893.
	Gobardanga ..	51	..	..	1st " "
	Basirhat ..	664	89	339	1st " "
	Baduria ..	173	8	126	1st " "
	Taki ..	158	21	77	1st " "
	Total ..	8,634	1,001	3,779	
Calcutta ..	Calcutta ..	22,044	5,772	13,051	1880.
Nadia ..	Krishnagar ..	386	32	80	1st October 1883.
	Nabadwip ..	275	32	34	1st " "
	Ranaghat ..	171	14	153	1st " "
	Birnagar ..	75	18	27	1st " "
	Santipur ..	618	63	45	1st " "
	Chakdaha ..	83	8	36	28th January 1887.
	Kushtia ..	117	11	19	1st October 1883.
	Kumarkhali ..	71	14	70	1st " "
	Meherpur ..	165	11	40	1st " "
	Total ..	1,961	203	504	

District.	Town.	Number of births during the year.	Number of deaths amongst children under one year during the year.	Number of successful vaccinations on children under one year during the year ending 31st March 1929.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Murshidabad ..	Berhampur ..	507	81	112	1st October 1883.
	Murshidabad ..	196	36	34	1st „ „
	Jiaganj-Azimganj ..	238	43	97	1st „ „
					(It formerly formed a part of the Murshidabad Municipality.)
	Kandi ..	195	24	241	1st October 1883.
	Jangipur ..	344	14	111	1st „ „
	Dhulian ..	246	22	126	26th June 1910.
	Total ..	1,726	220	721	
Jessore ..	Jessore ..	138	5	19	1st October 1883.
	Kotchandpur ..	67	8	8	1st February 1884.
	Maheshpur ..	51	17	4	1st October 1883.
	Total ..	256	30	31	
Khulna ..	Khulna ..	193	39	37	1st July 1887.
	Satkhira ..	249	65	169	7th July 1883.
	Debhatta ..	100	9	71	1st October 1883
	Total ..	542	113	277	
	Total of the Presi- dency Division.	35,163	7,339	18,363	
Rajshahi ..	Rajshahi ..	537	68	493	1st June 1881.
	Nator ..	142	39	2	1st January 1881
	Total ..	679	107	495	
Dinajpur ..	Dinajpur ..	91	11	266	1st January 1887.
Jalpaiguri ..	Jalpaiguri ..	336	14	322	1st January 1887.
Darjeeling ..	Darjeeling ..	556	41	776	1st September 1884.
	Kurseong ..	271	43	244	1st January 1887.
	Total ..	827	84	1,020	
Rangpur ..	Rangpur ..	315	28	100	1st July 1881.
	Gaibandha ..	110	4	1	20th November 1924.
	Total ..	425	32	101	
Bogra ..	Bogra	97	16	372	1st January 1882.
	Sherpur ..	63	14	8	1st October 1884.
	Total ..	160	30	380	
Pabna ..	Pabna ..	198	30	196	1st February 1882.
	Sirajganj ..	507	72	316	1st January 1887.
	Total ..	705	102	512	

Distric..	Town.	Number of births during the year.	Number of deaths amongst children under one year during the year.	Number of successful vaccination on children under one year during the year ending 31st March 1929.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Malda	English Bazar ..	358	25	261	1st March 1883.
	Malda ..	75	11	..	1st April 1887.
	Narabganj ..	457	60	92	12th May 1904.
	Total ..	890	96	353	
	Total of the Rajshahi Division.	4,113	476	3,449	
Dacca	Dacca ..	4,224	1,045	2,001	1st July 1887.
	Narayanganj ..	1,059	272	152	1st „ „
	Total ..	5,283	1,317	2,153	
Mymensingh	Mymensingh ..	496	96	21	1st October 1887.
	Muktagacha ..	99	15	23	1st „ „
	Netrakona ..	228	48	38	20th January 1890.
	Jamalpur ..	507	78	2	1st October 1887.
	Sherpur ..	578	35	48	1st „ „
	Kishorganj ..	222	33	61	1st „ „
	Bajitpur ..	150	31	..	1st „ „
	Tangail ..	234	36	22	19th February 1890.
	Gouripur ..	48	7	..	
	Total ..	2,562	379	215	
Faridpur	Faridpur ..	216	38	118	1st October 1887.
	Madaripur ..	504	53	70	1st „ „
	Rajbari ..	153	22	43	20th November 1924.
	Total ..	873	113	231	
Bakarganj	Barisal ..	435	85	46	1st October 1887.
	Jhalakati ..	55	12	1	1st „ „
	Nalchiti ..	17	1	..	1st „ „
	Pirojpur ..	288	40	294	1st January 1890.
	Patuakhali ..	90	14	6	25th January 1891.
	Bhola ..	98	3	..	8th November 1922.
	Total ..	983	155	347	
	Total of the Dacca Division.	9,701	1,964	2,946	
Chittagong	Chittagong ..	813	160	167	1st April 1887.
	Cox's Bazar ..	66	5	42	14th November 1892.
	Total ..	879	165	209	
Tippera	Comilla ..	213	11	60	1st April 1887.
	Brahmanbaria ..	701	96	167	1st „ „
	Chandpur ..	161	25	84	22nd July 1898.
	Total ..	1,075	132	311	
Noakhali	Noakhali ..	138	25	13	1st April 1887.
	Total of the Chitta- gong Division.	2,092	322	533	
	Total for the Presi- dency.	64,276	12,568	29,824	

PROVINCIAL STATEMENT A.

Showing the degree of protection afforded to infants during the year 1928-29.

Districts.	Rural population among which vaccinations were performed.	Number of births during the year.	Mortality among infants under one year.	Surviving population under one year available for vaccination.	Number successfully vaccinated.	Proportion of persons successfully vaccinated per 1,000 of population as shown in column 5.	Proportion of persons successfully vaccinated per 1,000 of population during 1927-28.
1	2	3	4	5	6	7	8
Jalpaiguri ..	921,749	31,056	5,942	25,114	12,659	504·1	419·6
Nadia ..	1,390,704	47,585	9,508	38,077	18,235	479	388·1
Darjeeling ..	254,045	9,324	1,454	7,870	3,656	464·4	404·6
Malda ..	955,830	31,845	4,577	27,268	12,529	459·4	479·1
Murshidabad ..	1,182,983	50,269	7,871	42,398	19,365	456·7	517·4
24-Parganas ..	1,998,318	57,947	8,361	49,586	15,739	317·4	407·3
Khulna ..	1,421,116	48,032	8,465	39,567	12,256	309·7	377·5
Dinajpur ..	1,687,328	59,908	11,551	48,387	14,890	307·9	355·7
Bankura ..	961,487	36,431	6,083	30,348	8,923	294	193·02
Pabna ..	1,344,633	30,242	5,704	24,538	7,077	288·4	325·5
Burdwan ..	1,343,185	38,600	8,113	30,487	8,577	281·5	231·2
Howrah ..	778,893	21,821	3,610	18,211	4,978	273·3	280·8
Rajshahi ..	1,457,037	45,611	9,326	36,285	9,257	255·1	487·1
Noakhali ..	1,465,071	49,268	6,444	42,824	9,129	213·1	245·3
Rangpur ..	2,782,722	77,765	19,010	58,755	11,039	187·8	216·3
Chittagong ..	1,570,760	46,768	6,778	39,990	7,021	175·6	140·9
Tippera ..	2,678,627	68,135	9,013	59,122	10,243	173·2	238·8
Birbhum ..	838,655	30,674	5,752	24,922	4,272	171·4	188·5
Jessore ..	1,700,924	39,377	6,658	32,719	5,422	165·6	334·1
Hooghly ..	900,802	25,141	4,509	20,632	3,086	149·5	157·3
Midnapur ..	2,595,071	81,425	12,554	68,871	9,031	131·1	228·3
Bogra ..	1,032,300	28,113	5,817	22,296	2,895	129·8	137·1
Dacca ..	2,975,915	86,492	15,663	70,829	9,141	129	115·3
Chittagong Hill Tracts	173,243	5,127	913	4,214	366	86·8	138·1
Mymensingh ..	4,703,249	113,768	22,833	90,935	7,795	85·7	95·6
Faridpur ..	2,202,783	65,455	11,719	53,736	3,525	65·6	77·9
Bakarganj ..	2,563,849	78,331	13,178	65,153	2,050	31·4	41·2
Total of the Rural circles.	43,584,279	1,304,510	229,406	1,075,104	233,158	216·9	246·7
Calcutta ..	1,077,264	22,044	5,772	16,272	13,051	802·05	856·8
Mufassal Municipalities.	2,033,993	42,232	6,796	35,436	16,773	473·3	511·7
GRAND TOTAL ..	46,695,536	1,368,786	241,974	1,126,812	262,982	233·3	261·4

PROVINCIAL STATEMENT B.

Showing different kinds of lymph used and the percentage of success during the year 1928-29.

No.			Primary vaccination.												Re-vaccination.																
			Direct from calf.				With lanoline lymph.				With glycerinated lymph.				Direct from calf.				With lanoline lymph.				With glycerinated lymph.								
			Total.	Successful.	Unsuccessful.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	Burdwan	..	..	..	..	..	64,670	61,567	2,718	385	95·2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	57,076	29,878	25,212	1,986	52·3
2	Birbhum	..	..	..	..	..	30,726	29,629	823	274	96·4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30,398	17,008	10,857	2,533	55·9
3	Bankura	..	..	..	..	..	43,819	42,559	920	340	97·1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24,838	10,281	12,576	1,981	41·3
4	Midnapur	..	..	..	..	..	97,717	89,275	2,876	5,566	91·3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	177,362	94,324	50,508	32,530	53·1
5	Hooghly	..	..	..	..	..	29,244	28,115	727	402	96·1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33,316	22,392	7,589	3,335	67·2
6	Howrah	..	..	..	..	..	31,383	30,131	786	466	96·0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28,641	12,002	12,425	4,214	41·9
	Total	..	..	..	..	..	297,559	281,276	8,850	7,433	94·5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	351,631	185,885	119,167	46,579	52·8
7	24-Parganas	..	..	..	..	..	123,276	116,635	4,011	2,630	94·6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	80,024	47,799	26,669	5,556	59·7
8	Calcutta	..	..	..	..	..	23,877	22,849	472	556	95·6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	82,275	15,723	48,859	17,093	19·1
9	Nadia	..	..	..	..	..	58,689	55,470	1,902	1,317	94·5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	57,189	36,166	15,005	6,018	63·2
10	Murshidabad	..	..	..	..	..	57,797	54,420	2,296	1,081	94·1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	311,306	169,450	94,585	47,271	54·4
11	Jessore	..	..	..	..	..	43,153	42,306	650	197	98·02	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	136,207	80,683	40,919	14,605	59·2
12	Khulna	..	..	..	..	..	60,774	59,784	662	328	98·3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	89,993	47,227	31,941	10,825	53·6
	Total	..	..	..	..	..	367,566	351,464	9,993	6,109	95·6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	756,994	397,048	257,978	101,968	52·4
13	Raishahi	..	..	..	..	..	25,807	25,158	254	395	97·4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	135,862	95,580	25,532	14,750	70·3
14	Dinajpur	..	..	..	..	..	86,111	79,050	4,963	2,098	91·7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	72,649	51,529	15,363	5,757	70·9
15	Jalpaiguri	..	..	..	..	..	27,481	26,047	1,413	21	94·7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37,648	16,296	18,659	2,693	43·2
16	Darjeeling	..	..	..	..	..	11,859	11,045	104	710	93·1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50,202	16,013	18,279	15,910	31·9
17	Rangpur	..	..	..	..	..	111,870	103,791	3,122	4,957	92·7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	112,600	91,675	13,479	7,446	81·4
18	Bogra	..	..	..	..	..	31,690	26,716	2,019	2,955	84·3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50,791	16,024	19,965	14,802	31·5
19	Pabna	..	..	..	..	..	59,689	55,953	2,862	874	93·7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	57,836	28,541	22,649	6,646	49·3
20	Malda	..	..	..	..	..	30,728	28,135	855	1,738	91·5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	476,864	325,565	55,423	95,876	68·2
	Total	..	..	..	..	..	385,235	355,895	15,592	13,748	92·3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	994,452	641,223	183,949	163,880	64·4
21	Dacca	..	..	..	..	..	149,470	136,568	6,796	6,106	91·3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	149,527	72,476	57,544	19,507	48·4
22	Mymensingh	..	..	..	..	..	272,180	236,962	19,285	15,933	87·05	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	255,149	160,829	63,885	30,435	63·03
23	Faridpur	..	..	..	..	..	67,587	64,841	1,330	1,416	95·9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	95,131	41,662	37,300	16,169	43·7
24	Bakarganj	..	..	..	..	..	168,707	159,692	4,615	4,400	94·6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44,223	28,117	12,897	3,209	63·5
	Total	..	..	..	..	..	657,944	598,063	32,026	27,855	90·9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	544,030	303,084	171,626	69,320	55·7
25	Chittagong	..	..	..	..	..	84,527	80,785	2,643	1,099	95·5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	108,925	42,697	52,538	13,690	39·2
26	Noakhali	..	..	..	..	..	89,668	73,638	4,047	11,983	82·1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	149,577	56,968	39,823	52,786	38·09
27	Tippura	..	..	..	..	..	136,465	126,883	5,157	4,425	92·9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	249,739	172,332	54,232	23,175	69·00
28	Chittagong Hill Tracts.	..	..	..	..	..	7,846	7,771	56	19	99·04	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11,758	5,906	5,595	257	50·23
	Total	..	..	..	..	..	318,506	289,077	11,903	17,526	90·7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	519,999	277,903	152,188	89,908	53·4
	Railways	..	..	..	..	..	6,404	4,620	1,750	34	72·1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14,766	9,219	4,993	554	61·07
	Steamers	..	..	..	..	..	7,930	7,463	467	..	94·1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,879	7,615	14,402	1,879	34·5
	Factories	..	..	..	..	..	9,675	9,012	383	280	93·1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22,017	11,321	6,560	5,534	48·3
	Tea Gardens	..	..	..	..	..	8	7	..	1	87·5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23,415	12	..	7	63·1
	Dispensaries	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	..	..	..	..
	Total for the Presidency.	..	..	..	..	..	2,050,827	1,896,877	80,964	72,986	92·4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,229,202	1,833,310	916,263	479,629	56·7

GOVERNMENT OF BENGAL.

Local Self-Government.

Public.

CALCUTTA, THE 2nd APRIL 1930.

RESOLUTION—No. 1050 P. H.

Minister-in-charge: The Hon'ble Kumar Shib Shekharwar Ray.

READ—

The Report of the Director of Public Health, the Sanitary Board and the Chief Engineer, Public Health Department, for the year 1928.

READ ALSO—

The fourteenth triennial report on vaccination in Bengal for the years 1926-27, 1927-28 and 1928-29.

1. **Public Health.**—(Statistical, Epidemiological and General Public Health Administration.)

Population.—For the purpose of this review the total population of Bengal, excluding the Chittagong Hill Tracts, is taken as 46,522,293 (1921 Census).

The vital statistics for the year 1928 taken as they stand show an increase of almost 1,00,000 in the number of births over those for the previous year, 1,375,680 as against 1,286,863 and practically stationary figures for deaths, 1,189,015 as against 1,189,370 in the previous year. On this basis the provincial birth rate rose from 27·7 per thousand in 1927 to 29·6 per thousand in 1928, as against the quinquennial average of 28·8; but remains the lowest provincial birth rate in India except that of Burma. The aggregate birth rate in rural areas (30·2) was nearly fifty per cent. higher than in urban areas (20·4), but no exact inference can be drawn from these figures as to industrial vital statistics as the towns include the

numerous rural townships in Bengal. The death rate for the whole province was 25·5 per thousand as against 25·6 per thousand in 1927.

The Director of Public Health has occasion to point out every year that these figures can only be taken as a collateral index to the true vital statistics and would estimate the margin of error to be as high as 27 per cent. The transfer of the duty of recording vital statistics to Union Boards has increased the Director's difficulties in obtaining these essential figures and even in the municipalities supervision over registration of births and deaths is far from adequate. No less than ten municipalities returned the quite impossible death rate of less than 10 per thousand. The vital statistics for the province must therefore be approached with some reserve until the Census of 1931 provides the opportunity of testing their results over the last decade. The decrease of population in Hooghly and Jessore districts continued; but there was an excess of births over deaths in twenty-two districts in the province.

There was a check in the progressive decrease of infantile mortality which has been a feature of the vital statistics in recent years. This figure which had fallen from 228·3 per 1,000 in 1919 to 178 per 1,000 in 1927 remained practically stationary in 1928 (178·1 per 1,000).

The Calcutta Corporation and the Dacca Maternity and Child-welfare Trust continued to give special attention to midwifery and to the care of infant life with excellent results. In Calcutta 7 maternity units were at work in charge of 5 Lady Health Visitors assisted by 22 nurses, against 5 in 1927. They attended 6,541 cases as compared with 4,748 in the preceding year and the death rate during the first ten days of infancy among the cases attended excluding stillbirths, was only 19·2 per mille as against 35·5 per mille in 1927, while the general mortality rate within the first week of infancy in the city was 116·9 per mille. In Dacca two maternity centres worked as before during the year and of 4,318 births registered in the city 1,381 were attended to by the centre staff. The rate of reported mortality within 10 days of infancy among the

cases attended to by the staff was 4.2 per cent. as against 9.62 per cent. among infants in the rest of the town.

Over a thousand dais were given elementary training by local bodies or associations with the help of Government grant, and the total number of Exhibitions and Baby Weeks was more than doubled (166 as against 67).

Cholera.—The year 1928 continued to show a rise in the curve for mortality from cholera with a rate for Bengal in excess of that of any other province in India and more than double the quinquennial average. The total number of deaths was 136,245 in 1928 against 118,377 in 1927, showing an increase of 16.0 per cent. As in the previous year, preventive measures taken comprised inoculation, disinfection of water-supplies, disinfection of infected houses and of the patients' clothes. Eighteen medical officers and temporary staff of 5 Sub-Assistant Surgeons and 100 Sanitary Inspectors were deputed to assist local bodies in checking outbreaks. Propaganda work was carried on by means of lectures and magic lantern demonstration given by the Government Publicity staff and the local sanitary officers. Special measures were taken to inoculate pilgrims for the Puri Rathajatra and the Ganga Sagar Mela.

There was a further increase in inoculations for cholera during the year under review. 2,304,457 cubic centimeters of cholera vaccine were issued during 1928 against 1,299,630 in 1927 and the number of inoculations performed rose to 1,941,023 from 781,872 in 1927. It is to be remembered that preventive inoculation is a new measure in Bengal so that high figures for cholera mortality are likely to go hand in hand with activity in inoculation against cholera until the practice is sufficiently widespread to be adopted beforehand in anticipation of an epidemic.

Small-pox.—Even in the case of small-pox the statistics for 1928 go to show that the ideal of preventive efficiency in which vaccination can preclude an epidemic is far from having been reached. A quinquennial epidemic which had been forecasted began in 1924. The curve in 1928 was still rising, with 43,558 deaths as against 42,514 in 1925, and 5,567 in 1924 the zero year; and the one district which attempted an organized campaign of mass vaccination (Malda) was that which returned the highest

ratio of small-pox mortality 3.27 per thousand. The reason is obvious. Intensity of preventive action still follows, rather than anticipates, an epidemic; and this feature is further illustrated by the statistics for vaccination in the province as a whole. During the year under review there were 5,281,419 vaccinations of which 2,052,217 were primary vaccinations and 3,229,202 re-vaccinations, successful vaccinations being 92.9 per cent. and 56.5 per cent., respectively. The number of successfully vaccinated children under one year was 262,982 against 281,727 in the previous year, while the total number of births, excluding infant deaths of 241,974 was 1,126,812 during the same period. Protection was therefore given to only about 24 per cent. of the surviving infants. This was due to the unwillingness of parents or guardians to have their children vaccinated under the age of one year.

The Director of Public Health reports that district boards are actively engaged in organising vaccination to counter the further epidemic anticipated and Government have recently drawn their attention to the necessity of taking special steps for the purpose.

Malaria and kala-azar.—In contrast to the increase in the two periodical epidemics to which this province is exposed it is satisfactory to find a very definite decrease in mortality both from malaria and kala-azar. Deaths from malaria were reported at 368,691 as against 429,143 in 1927 and 458,208 in 1926. Even after allowances are made for the inevitable vagueness of returns on which statistics are based a reduction of over 24 per cent. in two years in deaths from a disease which in its nature is not liable to the sharply recurring curves of small-pox and cholera does seem to give grounds for hope that the attention and expenditure devoted to this cause by the Public Health Department in the past few years are bearing fruit. Similarly in the case of kala-azar the decline which was noticed as a satisfactory symptom in last year's report still continued, 10,746 deaths being reported as against 11,855 in 1927. The total number of deaths from fever 752,007 as against 789,006 in 1927 represents a nondescript mortality, the importance of the figure for the purpose of statistics being chiefly in the fact that the decrease precludes any idea that mortality from malaria has been transferred to this head.

In reviewing the record of District Boards in 1928-29 the Ministry of Public Health had occasion to dwell on the progress and prospects of the scheme for establishing a rural health unit in charge of a sanitary officer in each police station, and it need only be mentioned here that in 1928 the total number of these units had risen to 272, a figure by now nearly doubled.

Public Health Engineering.—During the year 1928 the Chief Engineer formally made over to the Titagarh Municipality the sewerage works constructed at a total cost of Rs. 10,67,405 including a Government grant of Rs. 3,55,000. These works represent the first attempt to sewer an industrial municipality in the mill area and are likely to prove of much interest as attention turns towards the improvement of industrial health in the vicinity of Calcutta. Technically their most interesting feature is the introduction of the new process of actuated sludge, the possibilities of which for a small sewerage scheme of this kind are far-reaching. For the rest the activities of the Engineering Branch continued on a scale restricted by the general financial conditions.

The Naihati water-supply scheme was completed and the unfiltered water required for the sewerage system was provided at Dacca. Work was in progress on water works at Khulna, Comilla Patuakhali, Faridpur, Pabna, Midnapore, Burdwan and Asansol.

Personal.—Dr. C. A. Bentley, C.I.E., and Mr. F. C. Griffin were in charge throughout the year of the respective offices of Director of Public Health and

Chief Engineer, Engineering Branch, and the Government of Bengal desire again to express their appreciation of their services.

By order of the Government of Bengal
[Ministry of Local Self-Government
(Public Health)],

C. W. GURNER,
Secretary to the Government of Bengal.

Nos. 1051-1061 P. H.

Copy of the Resolution [with copies of the reports] forwarded to (1) all Commissioners of Divisions for information and communication to all District Officers and all Chairmen of District Boards in their respective Divisions; (2) the Surgeon-General with the Government of Bengal; the Inspector-General of Prisons, and the Inspector-General of Police, Bengal; for information; (3) Director of Public Health, Bengal, the Chief Engineer Public Health Department, Bengal; and the Secretary to the Sanitary Board, Bengal, for information.

[] (1) and (2) only.

By order of the Government of Bengal
[Ministry of Local Self-Government
(Public Health)],

AMINUZZAMAN KHAN,
Assistant Secretary to the Government of Bengal.

GOVERNMENT OF BENGAL.

Local Self-Government Department.

Public Health.

No. 1130 P.H.

FROM C. W. GURNER, Esq., I.C.S.,

Secretary to the Government of Bengal,

TO THE SECRETARY TO THE GOVERNMENT OF INDIA,

DEPARTMENT OF EDUCATION, HEALTH AND LANDS.

Calcutta, the 5th April 1928.

Annual Public Health Reports and Resolution for 1928.

Minister-in-charge: The Hon'ble Kumar Shib Shekhareswar Ray.

SIR,

I am directed to submit for the information of the Government of India copies of the reports noted below, together with a copy of the resolution recorded thereon :—

- (1) Report of the Public Health Department for 1928.
- (2) Triennial report on Vaccination in Bengal for the years 1926-27, 1927-28 and 1928-29.

I have the honour to be,

SIR,

Your most obedient servant,

C. W. GURNER,

Secretary to the Government of Bengal.

